A Morbid Disconnect: The Battle over Slave Health in the Early American Tobacco Industry

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Acknowledgements

My journey to this thesis began midway through the spring of my freshman year at Georgetown University. I was talking with Professor Adam Rothman, who was teaching my Early American Empire course. During our conversation, I said that I was “pre-med”\(^1\) and determined to study history. By history, I meant real political history; the history of how great leaders shaped the world. Without missing a beat, Professor Rothman suggested I take a course with Professor John McNeill, one of Georgetown’s environmental historians. I remember tacitly saying that was a great suggestion, but in my head I thought I would put in the same suggestion box where I put the extra bed risers my mother insisted I bring to college. I didn’t want to study mushy stuff like beavers. Yet, for some reason, the name McNeill stuck in my head.

In the summer after my sophomore year, while struggling to focus on my physics\(^2\) homework, I picked up John McNeill’s *Mosquito Empires* at the Georgetown Library.\(^3\) I was awestruck by how McNeill tied mosquito-borne diseases to the political and military power dynamics in the Greater Caribbean. He made mosquito vectors much more interesting than Newtonian vectors. After finishing the book, I knew I wanted in some way to learn from McNeill.

The seed of this thesis landed in my consciousness in the Fall of 2015 while I was studying abroad at the University of Edinburgh in Scotland. A bit homesick, I noticed that Georgetown University, the very institution I had fled, was in the news. Georgetown had

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\(^1\) A term in the undergraduate vernacular that indicates that the individual is taking the courses required to apply to medical school.
\(^2\) A course on natural phenomena that a student is required to complete before applying to an American medical school.
uncovered that it was in some way connected to a slave sale in 1838. An interesting thesis topic, I thought.

At the end of the semester, I returned to Georgetown and enrolled in Professor Shawn Brinsmade and Michael Hickey’s microbiology course to complete my pre-medical requirements. I realized I was in over my head. The course required me to conduct a semester-long original microbiology laboratory research project that would lead to a National Institutes of Health style grant proposal. The project proposal was due at the end of January. As the days crept by and I realized I still had no clue how microbiology worked – never mind what was significant to the field – I had to come up with something. In a moment of desperation, I gave up on asking a biology question all together. Instead, I asked a historical question that I could use microbiology to answer: what if slaves, like the ones that Georgetown once owned, got sick from touching bacteria on tobacco plants? I dug through the research and much to my surprise, not much had been written on the topic. After a bit of pleading with Professors Brinsmade and Hickey and my laboratory partner, they all agreed that I could give it a shot.

My team reached out to Samuel Murphy, Manager of Historic Trades at George Washington’s Mount Vernon, who kindly sent us both information and a UPS box with samples of tobacco leaves that he grew according to Washington’s eighteenth-century techniques. We did lots of laboratory tests, but were unable to conclusively prove that pathogenic bacteria lived on the leaves we received in a UPS box.

Undeterred, I was still confident that tobacco was toxic. I had read *Tobacco’s Hidden Children*, the report by Human Rights Watch, several years prior. I remember my shock that children suffered these diseases in twenty-first century American tobacco fields. Reflecting on the report within context of Georgetown’s association with slavery, I wanted to learn more about
how tobacco, diseases, and slavery intersected. Sonia Jacobson in the Office of the Provost encouraged and helped me to apply for Georgetown University’s Kalorama Undergraduate Research Fellowship to continue the investigation. Professor Brinsmade graciously wrote a letter of support. Additionally, Professor McNeill, whose line of study I had dismissed outright two years prior and subsequently whose book entirely changed how I viewed the study of history, took a risk on a student he had never met and wrote a letter of support too. I figured that if I could get Professor McNeill’s advice, I would have a decent shot at producing a useful paper.

I was awarded the Kalorama Fellowship in the Summer of 2016 and began full-time research on my topic. Over the course of the next year, I received invaluable help from across the Georgetown Library System. Specifically, Maura Seale, the American History reference librarian at Lauinger Library, helped me locate countless items in obscure history books. Since my first consultation in the fall of my freshman year on my Gandhi paper, Maura has been a tremendous resource throughout the research process. Once I identified items for my research, Dana Aronowitz and the Lauinger Library Interlibrary Loan team contacted libraries across the country to bring those items to Georgetown. I was often amazed to find items from far away states like Utah or Tennessee. The Bioethics Research Library was immensely helpful, both for helping navigate scientific literature and for employing me throughout the thesis writing process. The Bioethics Research Library’s Martina Darragh, Roxie France-Nuriddin, Patty Martin, and Professor Laura Bishop have all shared with me their expertise, encouragement, and often snacks. The Bloomer Science Library’s Jill Hollingsworth and Holly Surchaugh provided expertise on the history of science.

Outside of Georgetown, the superb staffs at the National Library of Medicine and the Albert and Shirley Small Special Collections Library at the University of Virginia assisted me in

Throughout the blisteringly hot Summer of 2016, Professor McNeill guided me through the research process. I spent most of the summer reading through the historiography on slavery and disease. I also had the opportunity to read The Diary of Landon Carter for the first time. However, much to my surprise, I did not find many plausible references to bacterial diseases impacting slave populations. As June turned to July, a cloud of worry soon overtook the whole project. In my mid-July meeting with Professor McNeill, I mentioned that I was thinking about simply switching topics. Then, he described his experience working in a North Carolina tobacco field after completing his PhD at Duke. He said one of his strongest memories was the feel of the sticky tobacco sap on his hands. At that moment, sitting in McNeill’s office, I connected that sap to the diseases described in the Human Rights Watch report to pattern of disease Carter described among tobacco industry slaves.

With this new broader focus on tobacco related diseases, I entered Professor Amy Leonard’s History Honors Thesis Seminar in the Fall of 2016. Professor Adam Rothman, who specializes in the history of American chattel slavery, agreed to join Professor McNeill as my thesis advisor. In the Spring of 2017, Professor Katherine Benton-Cohen took over my section of the Thesis Seminar and challenged me to further refine my argument by repeatedly asking –

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4 One day I walked into Professor McNeill’s office to tell him that I had anecdotal evidence to support his hypothesis in Mosquito Empires that Washington, DC is located in a swamp.
100 times – “what are you arguing, and what is the point.” While the first 99 times were incredibly frustrating, the argument that I produced on the hundredth iteration was far stronger than the original argument.

Professor Rosemary Sokas, an occupational medicine physician who holds an appointment in the Georgetown Department of Human Science, assisted in interpreting disease symptoms and how they relate to disease pathophysiology. Additionally, Professor Brian Taylor, Professor Alison Games, and Professor Dagomar Degroot of the Georgetown History Department, and Professor Robert Veatck of Georgetown’s Kennedy Institute of Ethics provided invaluable advice. Professor Josiah Osgood, a Roman historian for whom I worked as a research assistant, encouraged me throughout the process and modeled the highest ideals of historical scholarship. Professor Carole Sargent of Georgetown’s Office of Scholarly Publications helped explore publication options. My friend Jacqueline Kimmell assisted in formatting images.

Outside of Georgetown, Professor Margaret Humphreys of Duke University and Professor Todd L. Savitt of East Carolina University generously shared their expertise on slavery and disease in the United States. The patient staff at Thomas Jefferson’s Monticello answered each of my questions on slave life.

I am grateful and proud of my classmates, colleagues, and friends who trekked through this thesis-writing adventure with me. From late night conversations about historiography and First Bake writing-trips to classroom discussions about obscure primary sources and revelations about Donald Trump’s latest tweet, each of you never ceased to amaze and amuse me. You are a group of some of the most talented, most kind, and most independent thinkers that I have ever had the joy of associating with. The number of facts we collectively know is frightening. Together, we made it to the finish line.
Finally, I cannot adequately express my gratitude to my family for supporting me every step of the way. From reading history books together in elementary school to visiting the National Parks in Lexington and Concord, Lowell and Boston, Massachusetts, you nurtured my love for history. Even when you had somewhere to go, you let me ask the tour guide that one last question. But more importantly, you believed in me. Thank you to Mom, Dad, my brother David, my Grandparents, Judy and Dan, my Aunts and Uncles, and my cousins for your support and love.
Introduction

“The tobacco plant is intimately associated in my mind with negro slavery….I have been informed that the slaves employed in its cultivation are worse treated than any other class, because more exposed,” wrote Methodist minister John Dixon Long (1817-1894) in May of 1857. Just seven months prior, he moved his family from his native Maryland to the bustling and modern city of Philadelphia, Pennsylvania. He wanted to allow his children to grow up in a city without slavery, where they could learn to “regard all mankind as members of one universal family.”

Yet, to his shock and disgust, he found pro-slavery sentiment rampant in his new modern city. In response, he published his *Pictures of Slavery in Church and State* to educate Philadelphians about the horrors of slavery that he had witnessed in Maryland. In doing so, he risked financial ruin and social ostracism, not to mention physical violence, but felt telling slavery’s truth was more important.

The conditions in which slaves lived and worked concerned Long. Despite Long’s wish to illustrate how the slave system harmed African American’s lives, he used a passive construction to describe how it harmed tobacco slave’s lives. The verb “exposed” remains ambiguous – and perhaps that was Long’s intention. He may not have known what the tobacco industry’s slaves were exposed to or how that exposure impact their lives.

This thesis holds the exposure to which Long referred caused patterns of disease that characterized the daily life of a tobacco slave. The symptoms of these diseases contain not only medical, but also environmental, social, economic, and ultimately political significance. How

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antebellum Americans experienced, understood, and wrote about these disease symptoms, lies at the heart of this thesis.

Slaves in the United States and its colonial predecessors suffered from tobacco associated diseases from when they began laboring on Virginia’s tobacco fields in the early seventeenth-century until the Thirteenth Amendment to the United States Constitution in 1865 abolished slavery. This thesis spans from the eighteenth to 1865, which it collectively considers Early America, but focuses on the antebellum (1820-1861) because that is when medical discourse mixed with sectional politics in the debate over the future of the United States.

**The Argument**

The pursuit of profit guided the American tobacco industry – a pursuit that led to an intellectual disconnect and an irony specific to slave health. The industry attended to the health of its slaves to protect their value and maximize their productivity. However, the industry forced its slaves to work in toxic and dangerous environments that harmed their health and induced a characteristic pattern of disease. The industry failed to recognize the connection between a slave’s health and a slave’s work. This thesis explores both sides of that ironic disconnect.

Further, this thesis shows that political activists on all sides of debate over slavery weaponized descriptions of slave health, including those specific to the tobacco industry, in the pitched “battles of ideas “over the role of slavery in the antebellum American republic.

This thesis builds upon existing historical studies of the intersection of slavery and disease but uses the tobacco industry, rather than the political geography of Virginia, as its

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7 The source base does not provide evidence that slave owners attended to slave health specifically with the intention of fortifying slaves against the adverse health impacts of work in the tobacco industry. At times, slave owners used physical violence despite its adverse impact on slave productivity, to torture slaves in order to suppress rebellion and preserve order. Slave owners had multiple objectives.
analytic frame. Through focusing on the tobacco industry, this thesis identifies that the intellectual disconnect about slave health – a disconnect driven by the pursuit of profit – facilitated the exposure of slaves to the industry’s characteristic pattern of disease. Its method draws on a diverse Early American source base to trace the patterns of disease the American tobacco industry caused amongst its enslaved workers. This thesis is the first historical study that uses primary source evidence to demonstrate that slaves who came in direct contact with tobacco leaves suffered from transdermal nicotine poisoning. It holds that this contact posed a unique health risk for the Early American tobacco industry’s slaves. Additionally, this thesis is firmly situated in the historiographic school that holds American chattel slavery was first and foremost a capitalistic enterprise.

The tobacco industry’s scope changed dramatically throughout the Early American period. Its cultivation expanded as farmers pushed inland from their early coastal settlements. For much of the seventeenth and eighteenth century, tobacco formed the economic, social, and ultimately political bedrock of Virginia society. At the end of the eighteenth century and beginning of the nineteenth century, tobacco production decreased. Years of intensive tobacco monoculture had decreased the soil’s nitrogen levels. Simultaneously, the escalating demand for food in Europe driven by ongoing wars made wheat an attractive alternative. Still, tobacco

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8 This thesis examines the tobacco industry’s impact on slave health from 1760-1860. To avoid inelegant political periodization, this thesis refers to this time-period as “Early American.”
12 Morgan, *Slave Counterpoint*, 47.
remained a significant portion of western and southern Virginia’s economy. Farmers in Kentucky, Tennessee, and the Carolinas also took up the crop. Yet by the antebellum period, cotton had overtaken tobacco as the South’s most important crop. Why, then, does this thesis focus on a secondary crop?

Unlike sugar, corn, cotton, rice, indigo, and wheat, tobacco is inherently toxic to humans. The *nicotiana tabacum* plant is a biosynthetic factory that produces nicotine molecules from nitrogen in the soil and the reduction of atmospheric carbon. Americans cultivated tobacco so that consumers could inhale, snort, and chew tobacco leaves with concentrated nicotine molecules. In the twenty-first century, the nicotine molecule is a known toxin to human beings.\(^\text{13}\) Nicotine molecules interact with receptors in the nervous system impairing neuron function. An acute exposure to nicotine can cause serious dysfunction in the gastrointestinal, respiratory, cardiovascular, and neurological systems. Nicotine overdoses can be fatal. Tobacco’s inherent toxicity created a pattern of disease unique to the tobacco industry slaves in Early America.

In sum, this thesis examines the ideas about, and actual diseases the Early American tobacco industry propagated among its enslaved workers. It argues an intellectual disconnect surrounding the tobacco industry’s impact on slave health characterized it. In the antebellum, political activists weaponized the discourse about slave health to fight the battle over slavery.

From this broad argument, this introduction establishes where this thesis fits within the historiography of slavery and disease in Early America. It then provides an overview of the Early American tobacco agricultural process – a critical foundation for understanding the

\(^{13}\) Schep et al., “Nicotinic plant poisoning.”
patterns of disease that characterized the tobacco industry. A standard vocabulary for the thesis is established in the Table of Key Terms and the Table of Tobacco Industry Related Diseases. The introduction concludes with the structure that Chapters One, Two, and Three use to advance this thesis’s argument.

**Historiography**

It is important to understand where this thesis fits within the broader historiography on slavery and disease. The most detailed study of tobacco’s impact on the diseases that slaves endured is in Todd S. Savitt’s 1978 study, *Medicine and Slavery: The Diseases and Health Care of Blacks in Antebellum Virginia*. While the study uses Virginia as its geographic frame, the centrality of tobacco to the Virginia slave system – despite the waning of tobacco production by the antebellum era – allows Savitt to explore the diseases slaves experienced on tobacco plantations. Savitt draws upon a wealth of manuscript sources to create a clear overview of the African American disease experience. Savitt recognizes that slaves endured the endemic vector-born disease malaria, respiratory diseases such as tuberculosis, environmental diseases such as frostbite and heat stroke, bacterial diseases such as lice-born typhus, cholera, salmonella, and shigella, parasitic worms, severe physical trauma, and genetic diseases such as lactose intolerance and sickle cell anemia.\(^\text{14}\) Savitt argues patterns of disease shifted with the seasons, writing:

> Respiratory illnesses prevailed during the cold months, when slaves were forced to spend much time indoors in intimate contact with their families and friends. As warm weather arrived and workers spent more time outdoors, intestinal diseases caused by poor outdoor sanitation and close contact with the earth became common.\(^\text{15}\)


Climate intrinsically linked agriculture and disease in Virginia. Savitt also contextualizes the disease burden that slaves endured with the economics that underlay American chattel slavery.\textsuperscript{16} He demonstrates how influential white authorities, such as New Orleans physician Samuel A. Cartwright (1793-1863), used the susceptibility of African American slaves to certain diseases and differential immunity toward others to prop up their pro-slavery arguments.\textsuperscript{17}

Virginia can be dangerously hot in the summer. Savitt shows that slave owners recognized the impact of excessive heat on slaves. He lists one documented case of heatstroke and implies there were many more.\textsuperscript{18} Based upon his own medical training, he argues that black-skinned slaves had a greater heat tolerance – even after acclimation – than white workers because black individuals discharged smaller amounts of vital sodium chloride and other electrolytes than white workers under similar conditions. When concentration of these critical electrolytes drops too low, critical homeostatic processes are disrupted. In extreme cases, this drop can result in heat stroke and death. Thus, based upon black workers’ comparatively greater ability to conserve electrolytes, he argues they were better able to withstand extreme heat.\textsuperscript{19} This difference in electrolyte discharge rate, however, is likely unconnected to a person’s skin color. Rather, it is likely associated with the geographic location of one’s ancestors. For those who lived in hot and humid environments, the ability to retain electrolytes was adaptive. Many of those who’s ancestors’ geographic location selected for this ability happened to have darker skin pigment.

\textsuperscript{16} Savitt, \textit{Medicine and Slavery}, 8.
\textsuperscript{17} Savitt, \textit{Medicine and Slavery}, 10-17.
\textsuperscript{18} Savitt, \textit{Medicine and Slavery}, 104.
\textsuperscript{19} Savitt, \textit{Medicine and Slavery}, 41.
Savitt mentions that a small group of slaves may have suffered from tobacosis, a form of nicotine poisoning associated with inhaled tobacco dust, in urban tobacco factories, but he did not explore nicotine poisoning among field tobacco workers.

Disease is both a social and biological condition. Thus, the historiography of medicine, disease, and slavery in Early America closely parallels the growth of the fields of environmental and social history, the broader environmental and civil rights movements, and the growth of medical knowledge. Richard Harrison Shryock’s *Medicine and Society in America, 1660-1860*, which was published in 1960, was the first modern historical study to touch on how medicine and disease intersected with slavery in the United States. He mentioned that malaria, inadequate nutrition, hookworm infection, and dengue contributed to slave morbidity in the American South. He also mentioned – without further explanation – that slave owners provided slaves with healthcare, and occasionally contracted the services of a physician. Shryock’s study does not differentiate between the plantation systems that existed in varied locations or dates nor does it connect that differentiation to unique patterns of disease amongst slaves.

Since Shryock’s original study, historians have continually reframed how disease and medicine intersected with the American slave system. Some historians argue the slave system

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20 Tobacosis is an archaic medical term that is not part of the Medical Subject Headings (MeSH) Database. MeSH is the control vocabulary for the National Library of Medicine, which catalogues medical terminology in the United States. “Tobacosis” does not appear in the Oxford English Dictionary as of May 8, 2017. Savitt implies that he is referring to a lower pulmonary disorder that is found in MeSH as “pneumoconiosis.”


created diseases among enslaved populations. Others focus on how slaves experienced disease and contend that slaves used health and medicine as a tool of resistance. Some studies demonstrate the connection between slave diseases and the economic system that created the ecologies that drove American slavery. Political histories convincingly show that yellow fever and malaria, two diseases brought to America by the trans-Atlantic slave trade, shaped government military, economic, and social policies, not to mention daily life, in the antebellum era. Other studies show how the slave disease experience drove the growth of government


policies – particularly around the question of whether slavery helped or hurt African American health.\textsuperscript{28}

In light of the Civil Rights movement’s impact on the American health system, some of the most provocative studies argue that significant portions of modern medicine were built upon experiments physicians performed on slaves.\textsuperscript{29} Particularly Others use the lens of women’s history to examine slavery’s unique impact on women’s health. These historians show that childbirth – or breeding as so many slaveholders saw it – directly tied women’s health to the broader system of trading human bodies.\textsuperscript{30}

**Overview of Early American Tobacco Agriculture**

Early American tobacco plantations had distinct labor patterns. The average tobacco plantation had relatively few slaves; half had fewer than twenty.\textsuperscript{31} Tobacco agriculture required significant labor for extended periods of time and was thus most effectively grown on relatively small-scale plantations.\textsuperscript{32} These slaves frequently worked alongside white contract laborers.


\textsuperscript{31} Morgan, *Slave Counterpoint*, 41.

\textsuperscript{32} Morgan, *Slave Counterpoint*, 36.
These laborers were exposed to many of the same occupational risks as their enslaved counterparts.

Virginia’s Chesapeake Bay region was particularly well-suited to cultivating tobacco due to its well-drained soil, easy access to the trans-Atlantic market via navigable waterways, and nearly 200 day frost-free growing period from mid-April to late-October. Tobacco planters began the agricultural cycle by ordering field hands to clear new fields in the winter and, by March, sow tobacco seeds in mulch covered by oak leaves to protect them from frosts. The winter and spring required lighter labor, thus allowing plantations to grow other crops, primarily wheat. In April and May, workers transplanted the tobacco seedlings into the main field. In the heat of June, July, and August, field hands constantly maintained the tobacco plants. Nearly every day, they would weed or fertilize the fields.

The summer work fell primarily into two categories: plant trimming and pest control. Field hands trimmed small leaves and stalks, a process called suckering, and trimmed the top, a process called topping, to promote growth toward approximately ten large tobacco leaves. Field hands regularly inspected tobacco plants for ground worms and tobacco caterpillars. These hungry pests could destroy an entire year’s harvest if they were not quickly killed. In August or September, field hands harvested the tobacco plants, hung them by stakes in a tobacco barn for several weeks, and then stuffed them into hogsheads for shipment in the fall. Particularly from June through September, field hands touched tobacco plants nearly every day. During this period, field hands, both free and enslaved, frequently returned home after a full day’s labor with a sticky, nicotine-rich tobacco juice covering their hands.

33 Morgan, *Slave Counterpoint*, 33.
34 See Table 1: Table of Key Terms
A Few Key Terms and Diseases

A study that combines highly technical fields can easily become stuck in a thicket of overlapping technical language. This thesis draws heavily upon both the history of antebellum American slavery and upon medicine. The following are two tables to streamline the vocabulary.

### Table 1: Table of Key Terms

<table>
<thead>
<tr>
<th><strong>Key Term</strong></th>
<th><strong>Definition</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Battle of Ideas</td>
<td>The antebellum debate over the role of slavery in the United States</td>
</tr>
<tr>
<td>Chattel Slavery</td>
<td>A form of slavery in which humans are considered another person’s property. Prior to 1865, this type of slavery was legal in certain parts of the United States.</td>
</tr>
<tr>
<td>Disease</td>
<td>A condition of being out of health; illness, sickness(^{36})</td>
</tr>
<tr>
<td>Disease, Pattern of</td>
<td>The frequency and distribution of a disease across a population(^{37})</td>
</tr>
<tr>
<td>Disease Causative Agent</td>
<td>The molecule, environmental condition, or pathogen that causes a disease</td>
</tr>
<tr>
<td>Etiology</td>
<td>The causation of a disease</td>
</tr>
<tr>
<td>Field hands</td>
<td>A term for both free and enslaved tobacco field workers</td>
</tr>
<tr>
<td>Germ Theory</td>
<td>The theory, yet to be successfully challenged, that pathogens cause disease. The theory was developed in the 1880s by Louis Pasteur (1822-1895) and Robert Koch (1843-1910).(^{38})</td>
</tr>
<tr>
<td>Homeostasis</td>
<td>The state at which a biological system that is necessary to sustain life</td>
</tr>
<tr>
<td>Pathophysiology</td>
<td>The abnormal physiological processes caused by or associated with a disease or injury(^{39})</td>
</tr>
<tr>
<td>Retrospective Diagnosis</td>
<td>A retrospective diagnosis is assigned to an individual after the affected individual has died. If it is a historical figure, it is usually created without performing a scientific examination of the body or tissue samples. This thesis avoids assigning a definitive retrospective diagnosis to any eighteenth or nineteenth century individual. Rather it simply highlights the presence of disease symptoms in historical primary sources and suggests a disease that could cause those symptoms. A diagnosis indicates a significantly greater degree of certainty than a suggestion.</td>
</tr>
</tbody>
</table>

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38 For a history of germ theory, see John Waller. *The Discovery of the Germ: Twenty Years That Transformed the Way We Think About Disease*, (Columbia University Press, 2002).
Route of Exposure | The way in which a disease causative agent enters a biological system
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Slave System | The entire network that supported and utilized slaves in the Atlantic world.
Tachycardia | Increased Heartrate
Tobacco Industry | The plantations, storehouses, modes of transportation, and factories that worked together to transform tobacco seeds into finished tobacco products and then bring those products to market.
Weaponized Ideas | Stories and ideas that actors used to fight each other in the Battle of Ideas

### Table 2: Table of Tobacco Industry Related Diseases

<table>
<thead>
<tr>
<th>Disease Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Nicotine Poisoning</td>
<td>A disease state following a significant exposure to nicotine in which nicotine disrupts homeostatic functions.</td>
</tr>
<tr>
<td>Asthma</td>
<td>A form of bronchial disorder with three distinct components: airway hyper-responsiveness (RESPIRATORY HYPERSENSITIVITY), airway INFLAMMATION, and intermittent AIRWAY OBSTRUCTION. It is characterized by spasmotic contraction of airway smooth muscle, WHEEZING, and dyspnea (DYSPNEA, PAROXYSMAL).</td>
</tr>
<tr>
<td>Carbon Monoxide Poisoning</td>
<td>Toxic asphyxiation due to the displacement of oxygen from oxyhemoglobin by carbon monoxide.</td>
</tr>
<tr>
<td>Dehydration</td>
<td>The condition that results from excessive loss of water from a living organism.</td>
</tr>
<tr>
<td>Frostbite</td>
<td>Damage to tissues as the result of low environmental temperatures.</td>
</tr>
<tr>
<td>Heat Injury/Heat Stroke</td>
<td>Heat Injury is a catch-all term that includes both heat stroke and its precursor heat exhaustion. Heat Stroke is condition caused by the failure of body to dissipate heat in an excessively hot environment or during PHYSICAL EXERTION in a hot environment. Contrast to HEAT EXHAUSTION, the body temperature in heat stroke patient is dangerously high with red, hot skin accompanied by DELUSIONS; CONVULSIONS; or COMA. It can be a life-threatening emergency and is most common in infants and the elderly.</td>
</tr>
<tr>
<td>Hypothermia</td>
<td>Lower than normal body temperature, especially in warm-blooded animals.</td>
</tr>
<tr>
<td>Multi-System Organ Failure</td>
<td>A progressive condition usually characterized by combined failure of several organs such as the lungs, liver, kidney,</td>
</tr>
</tbody>
</table>

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40 Unless otherwise noted, all definitions from the Medical Subject Headings (MeSH) Controlled Vocabulary, U.S. National Library of Medicine, 2017.
41 Adapted from Schep et al., “Nicotinic plant poisoning.”
<table>
<thead>
<tr>
<th>Physical Violence</th>
<th>The deliberate exercise of physical force against a person, property.(^{43})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumoconiosis</td>
<td>A diffuse parenchymal lung disease caused by inhalation of dust and by tissue reaction to their presence. These inorganic, organic, particulate, or vaporized matters usually are inhaled by workers in their occupational environment, leading to the various forms (ASBESTOSIS; BYSSINOSIS; and others). Similar air pollution can also have deleterious effects on the general population.</td>
</tr>
<tr>
<td>Psychological Abuse</td>
<td>Psychological distress purposefully induced by hostile actions.(^{44})</td>
</tr>
<tr>
<td>Repetitive Stress Injury</td>
<td>Harmful and painful condition caused by overuse or overexertion of some part of the musculoskeletal system, often resulting from work-related physical activities. It is characterized by inflammation, pain, or dysfunction of the involved joints, bones, ligaments, and nerves.(^{45})</td>
</tr>
<tr>
<td>Respiratory Disorders</td>
<td>Diseases of the respiratory system in general or unspecified or for a specific respiratory disease not available.(^{46})</td>
</tr>
<tr>
<td>Smoke Inhalation</td>
<td>Pulmonary injury following the breathing in of toxic smoke from burning materials such as plastics, synthetics, building materials, etc. This injury is the most frequent cause of death in burn patients.(^{47})</td>
</tr>
<tr>
<td>Torture</td>
<td>The intentional infliction of physical or mental suffering upon an individual or individuals, including the torture of animals.</td>
</tr>
</tbody>
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**Structure: A Path Through the Fields**

Chapter One of this thesis primarily uses the papers of physicians and slave owners to explore how industry leaders thought about and acted to preserve the health of their human chattel. It illuminates how industry leaders formed alliances with physicians who shared their pursuit of profit. Further, it explains how pursuit of profits and fame motivated physicians to

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\(^{42}\) Adapted from “Multiple Organ Failure,” MeSH.
\(^{44}\) Adapted from “Trauma- and Stressor-Related Disorders,” *DSM V*, 2017.
\(^{45}\) Adopted from “Repetitive Strain Injuries,” (MeSH).
\(^{46}\) Adopted from “Respiration Disorders,” (MeSH).
\(^{47}\) Adopted from “Smoke Inhalation Injuries,” (MeSH).
experiment on slaves with unproven medicines and surgeries designed to promote slave workplace production.

Next, Chapter Two uses references to disease in the historical record to reconstruct the pattern of disease that tobacco industry’s slaves endured. It heavily draws upon the voices of former tobacco slaves published in slave narratives. While avoiding the perils of retrospective medical diagnosis, it offers conjectures about the kind of diseases described in antebellum and colonial records.48

Chapter Three analyzes descriptions of disease in the context of political documents. Its focus widens from the tobacco industry to the broader discourse on slave health and disease. The chapter demonstrates that political actors weaponized ideas about health and descriptions of disease to fight in the broader antebellum debate over slavery in the United States.

The Conclusion reprises the thesis’s core argument, proposes future areas of inquiry, and illuminates how the tobacco industry continues to cause similar patterns of disease to those slaves experienced. It uses a twenty-first-century report to show the diseases that characterize the modern tobacco industry. Over 150 years after emancipation, tobacco agriculture still sickens some of modern America’s most vulnerable populations. The past echoes.

48 A suggestion is significantly less definitive than a diagnosis. See “Retrospective Diagnosis” in Table of Key Terms.
Chapter One: The Science of Chattel

The American Cotton Planter and Soil of the South magazine in 1857 published a letter to doctor N.B. Cloud’s from a plantation owner which advised “the care and management of his slaves forms an important branch of the planter’s business….Whatever therefore tends to promote their health and render them prolific is worthy his attention.”49 The letter emphasized that the secrets of slave management, often based upon newly discovered science, could help maximize plantation profits.

This chapter explores how slave industry leaders conceptualized and sought to protect the health of their human chattel – all in the pursuit of slave system profits. It covers how these leaders formed unholy alliances with physicians in the joint pursuit of financial reward. These physicians employed their medical knowledge to evaluate and attempt to preserve the financial value of their enslaved patients. Some of these physicians experimented on slaves with unproven and novel surgeries or medicines to keep slaves working and reproducing.

This chapter is arranged around the following topics: how slave-owners used medicine, the growth of antebellum southern medicine from 1828 until 1861, scientific slave management, the slave industry-physician alliance, and medical experimentation. While some of the sources are from outside tobacco growing areas, they reflect important dynamics surrounding health that played out similarly within the antebellum tobacco industry.

Slaveholder Use of Medicine

Slave plantations were designed to maximize production, and by extension profits, for the owner. Plantation owners recognized the risk that disease posed to that production and profit. Sick or injured slaves could not effectively labor in the fields. They were also less likely to successfully reproduce, which prevented slave-owners from acquiring additional human chattel. Further, some masters recognized that sick slaves could spread infectious diseases to their own (white) families. Perhaps a few also genuinely felt a humanitarian concern for their chattel.\textsuperscript{50} Whatever the reason, the prudent slave owner – such as the one to which Southron addressed at the beginning of this chapter – should rightly interest himself in the health and wellbeing of his human chattel.

This interest led Early American plantation owners to the central question: how should they protect the health of their slaves? Some slave holders took an acute interest in the actual practice of medicine. Landon Carter (1710-1788), who owned the large Sabine Hall plantation in Virginia, meticulously recorded in his diary the medical care that he administered to his enslaved workers. His \textit{Diary} provides a largely unfiltered window into the mind of a medically attuned slave owner. At his Sabine Hall plantation, Carter owned approximately 100 slaves. Located in the Virginia’s Tidewater region on the Rappahannok River that flows into the Chesapeake Bay, the plantation grew tobacco, corn, and wheat throughout Landon Carter’s life.

Carter first formally studied medicine while a young scholar in England. When he returned to Virginia, he carefully noted the symptoms of disease on his plantation amongst both his direct family and his slaves.\textsuperscript{51} Since Carter considered himself a self-trained practitioner, he

\textsuperscript{50} Savitt, \textit{Medicine and Slavery}, 150.
\textsuperscript{51} For a thorough analysis of Carter’s medical practice, see “Plantation Medical Science” in Rhys Isaac, \textit{Landon Carter’s Uneasy Kingdom: Revolution and Rebellion on a Virginia Plantation}, (Oxford: Oxford University Press, 2004), 105-120.
rarely sought a physician’s services. He wrote in his *Diary* on October 3, 1756 “Neither do I know of any certain success attending any Physician.” In his pursuit of profits, he did not see the need to pay for medical services that he could perform equally well himself.

That said, Carter considered medical care essential to the successful management of his plantation. Carter believed in an allopathic form of medicine rooted in the metaphor that the body was a mechanical entity. The heart and blood vessels formed a hydrolytic system. This philosophy advocated medical interventions that countered the disease symptom – remove excess fluid if the pressure was too high or reduce the temperature if the body was too hot.

When illness befell a person on Carter’s plantation, he typically first prescribed the patient “a vomit” with the syrup of ipecac. The logic was simple enough – something inside the body is causing the disease. To cure the disease, that something - and Carter certainly only knew it was a something as he could not pinpoint the etiology of a disease – must be extracted or expunged from the body. Other common treatments included the “rattlesnake root” that Carter administered to thin phlegm in patients who presented with excessive phlegm that partially obstructed their respiratory passages. To treat fever, which Carter considered inflammatory, he attempted to reduce the hydrostatic pressure in the system via bleeding. Carter recognized that many of his slaves suffered from parasitic worm infections. To treat these slaves, he prescribed various mercury-based compounds to poison and dislodge the parasites.

Carter understood that illness could hurt his slaves or prevent his slaves from working – and thus diminish the slaves’ intrinsic value or the profits from their agricultural labor. He wrote on Saturday, June 25, 1770, “the [enslaved] women who fainted yesterday have two of them to

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work very well.” Yet, out of an abundance of caution, he said “if the weather should be hot to let
the women sit down for about an hour at midday.” Two days later, he noted that 10 out of his
32 workers were too sick to work – a disability rate of over 30%.

In the mid to late eighteenth century, Carter stood out for his interest in meticulously
recording the ailments that afflicted his slaves and the treatments that he prescribed to address
those ailments. His diary is full of references to slaves experiencing “fevers and ague,” “sick
stomachs,” and “headache.” Carter’s Diary provides insight into how a tobacco plantation
owner used medicine to address health ailments of his slaves in the pursuit of plantation profits.

While most slave holders displayed less zeal for medicine than Carter, most provided
some form of healthcare to their slaves. For the most complicated cases, they would consult a
physician, if available. During the mid-nineteenth-century, when American medical schools
began creating a larger professional medical workforce, physicians gradually began providing
more of the specialized medical services – such as reducing fractures – than slave owners.
However, slave communities themselves provided the majority of healthcare – often in secret
under threat of punishment – to sick or injured slaves. Slave holders were just one of several
providers of healthcare to slaves in Early America.

**The Growth of Southern Medicine**
Early American intrinsically tied disease to their perceived connection to the land itself.\(^{57}\) In the era before Louis Pasteur and Robert Koch’s “germ theory” connected disease etiology to microbes and molecules, Early Americans thought the land, and the vapors over the land, interacted with people’s “constitutions” to create states of health. In their minds, they linked the health of the environment to the health of individual people.\(^{58}\) Particularly in agricultural regions, the well-being of the environment dictated the well-being of individual people and the nation, under Providence, as a whole.\(^{59}\)

Many Early Americans believed that they were the rightful custodians of the land, and that right permitted them to use the land toward productive and civilized ends. To achieve those ends, they developed theories of managerial science. Particularly in slave-holding regions, those theories extended to how slave owners managed their slaves. Healthy and productive slaves indicated the slave owner firmly controlled and properly managed his lands.\(^{60}\) Ill or unproductive slaves suggested the contrary.

Prudent slave-owners who interested themselves in the cutting-edge managerial theories of the day quickly realized that protecting the health of their slaves would make their plantations more profitable. Many slave owners and the physicians they employed were not particularly interested in medical theories outside the question of how to get their ill slaves back to work in the fields.\(^{61}\) However, they followed this narrow interest wherever it led. Leading Southern physicians organized their profession by establishing medical societies and medical schools such

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\(^{57}\) For a thorough discussion of how nineteenth century Americans intellectually connected the physical land to health, see Conevery Bolton Valencius’ *The Health of the Country: How American Settlers Understood Themselves and Their Lands* (2002).


as the Augusta Medical Society and the Medical College of Georgia. The 1828 Charter of the Medical College of Georgia called for the creation of “a Medical Academy for the State of Georgia” that would “promote the improvement of its pupils in the several branches of the healing arts.” One of those branches concerned itself with “negro-related diseases.” – diseases that exclusively afflicted Africans and African Americans.

Medical Schools across the antebellum South rushed headlong into the task of developing a professionally trained physician workforce. Students at the Medical College of Georgia took courses, under the supervision of expert faculty, in descriptive anatomy, physiology, pathology, chemistry, pharmacy, therapeutics, medical jurisprudence, the practice of medicine, obstetrics and diseases of women and infants, and surgery. The College prided itself on exposing its students to “as many surgical cases as possible,” – a curricular feature made possible by its robust professional network that sent “persons in indignant circumstances who may require surgical operations.” Some of those indignant were surly slaves. The school also advertised its renovated college building, which included an anatomy room that is “much enlarged and modified as to make its demonstrations plainly.” Students could also observe disease cases at the affiliated city hospital, which was staffed by the College’s faculty. The College’s Annual Announcement proclaimed given that “[t]he age in which we live is emphatically one of progress and one in which therefore no institution should be deemed worthy of patronage which can

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63 European slavers published treaties on how to specifically protect the health of African slaves as early as 1729. See T. Aubrey, The Sea-surgeon, or the Guinea Man's Vade Mecum. In which is laid down the method of curing such diseases as usually happen abroad, especially on the coast of Guinea, with the best way of treating negroes, both in health and in sickness. This document is catalogued in the National Library of Medicine’s Indexcat, # 10106811300.
remain satisfied with the statu quo,” the College aimed “to demonstrate to the [medical] Profession that the prosperity of their school will rather prove an incentive to increased exertions.” The College’s Trustees called on respectable society to invest in the development of a Southern medical profession.

Southern physicians also published many regional medical journals. The region’s major medical journals included *The Stethoscope* (Richmond, VA), *The Southern Medical and Surgical Journal* (Augusta, GA), *The New Orleans Medical and Journal* (New Orleans, LA), *The Transylvania Journal of Medicine and the Associate Sciences* (Lexington, KY), and *The Southern Medical Reports* (New Orleans, LA). Further, general commerce publications such as *De Bow’s Review* (New Orleans, LA) often carried articles on slave health. At its peak, approximately 1,500 southerners subscribed to *De Bow’s Review*, making it the most recognized journal in the antebellum South. These journals frequently published articles that examined what physicians perceived were the unique anatomy and physiology of enslaved African Americans; and the diseases that disproportionately affected them.

Collectively, groups of Southern physicians gradually built distinct regional medical identity: Southern Medicine. Historian John Duffy, in his landmark article “A Note on Antebellum Southern Nationalism,” argues that Southern physicians created a “medicogeographic thesis” built upon the premise that Southern diseases and Southern medical practice were distinct and separate from their Northern counterparts. He contextualizes this movement within a broader movement in professions throughout the South to justify the continuation of slavery in a world

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that was rapidly abolishing the peculiar institution.\textsuperscript{66} Southern physicians used medical schools, professional societies, and journals to spread ideas across the entire region and train the next generation of physicians.\textsuperscript{67} In contrast to the urban hospital movement in the North, Southern Medicine’s physicians largely practiced within the sole proprietor model.\textsuperscript{68} The region’s rural character and difficult transportation routes inhibited the growth of many large urban centers outside of New Orleans at the mouth of the Mississippi River. In many areas, rural slave owners were the largest contractor for medical services.\textsuperscript{69} Many doctors focused their practice, research, and publication on the diseases that impacted slaves. By foot, horse, and buggy, doctors followed the market – a market that often led to the tobacco industry.\textsuperscript{70}

**The Rise of Scientific Slave Management**

In the antebellum, several decades before Louis Pasteur and Robert Koch developed germ theory, all sorts of theories about disease and health abounded in the United States. While a few experts studied the latest medical knowledge that developed in Europe, many Southern physicians received little formal scientific training. Quacks swarmed the United States as medical societies and governments struggled to develop professional licensure standards.\textsuperscript{71}

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\textsuperscript{67} For a study of how these institutions shaped rural Southern physician’s ideas, see Kenny, “Medical Racism’s Poison Pen.”


\textsuperscript{69} Is this an example of where you would prefer more examples in the show, not tell model?

\textsuperscript{70} Peter McCandless argues that Southern Medicine developed a more uniquely insular focus on the local population and environment than physicians practicing in cosmopolitan centers such as Philadelphia. See McCandless, *Slavery, Disease, and Suffering in the Southern Lowcountry*, 167.

Particularly in the South, with its largely rural population, much of what passed as medicine was based upon remedies passed down for generations.

Agricultural consultants published books and articles directed toward plantation owners. These works often devoted sections to the ever-present topic of slave health. J.W. Randolph, a printer in Richmond, VA published his widely circulated *Plantation and Farm Instructions, Regulation, Record, Inventory, and Account Book* in 1853.\(^2\) The book provided readers with a comprehensive instruction manual for how to run a plantation – including one that grew tobacco. Randolph intended it for all levels of experience. For the discouraged or novice plantation owner, Randolph included an inspirational quote from George Washington. Novices would benefit from the advice on crop rotation and basic plantation mathematics. Even the most experienced plantation owner would benefit from the book’s meticulous lists of necessary supplies and quarterly accounting charts.

Throughout the book, Randolph interspersed advice for how slave owners should care for their chattel. On the book’s first substantive page, he urged owners to diligently keep “the record of marriages, births, and deaths, among the negroes…and the record of physicians’ visits.”\(^3\) To assist the organizationally challenged plantation owner, he even provided a helpful “Inventory of Negroes” worksheet with columns for a slave’s number, name, age, occupation, and value (See Figure 1). Randolph promised his readers that within his plantation management rules “consists the secret of all good management, the success of some men and the failure of others.”\(^4\) The


\(^3\) Randolph, *Plantation and Farm Instructions*, 2.

document exudes Randolph’s belief that management of all aspects of the plantation, rooted in the latest scientific theories, would lead plantation owners to greater profits.

Figure 1: Inventory of Negroes published on page 20 in J.W. Randolph’s *Plantation and Farm Instructions*. This specific book was owned by William G. Crenshaw. The document is part of his papers archived in *Records of the Southern Plantations*. See Series E, Part 1, Reel 39.

This scientific approach extended well into how the owner and overseer managed the plantation’s slaves. Randolph began the book’s “Treatment of Negroes” section with the advice that “nothing is more important in the right government of negroes, than the feeling and deportment of the manager toward them.” He then admonished his reader “nothing is more sure to make negroes run away than a threat of punishment, especially if done in a passion.” The book always cloaked its message in the language of Christian charity; yet the horrors of slavery still peek through. Randolph advised that “no man should attempt to manage negroes, who is not perfectly firm and fearless…” He left the reader to determine precisely what “perfectly firm and fearless” meant.

The “Treatment of Negroes” section extensively covered slave health. The guide urged readers to “be kind and attentive to [negroes] in sickness and in old age.” Specifically, Randolph said that caring for sick slaves “will require your best attention; and to be ignorant of the best

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75 Randolph, *Plantation and Farm Instructions*, 4-5.
mode of discharging your duties in these particulars, is to be unfit for the responsible station you hold.” A competent plantation manager must care for the health of his slaves.

Once again, to help the novice plantation manager, Randolph delineated the protocol for how a manager should care for his slaves. He wrote:

To preserve the health of the negroes, they must be well fed and clothed and comfortably quartered. They should not be unduly exposed to wet and cold-to avoid which, suitable work should be provided within doors for bad weather. Pregnant women should be exempted from any but the lightest labor for several months before and after confinement-mothers be allowed to attend to their infants til weaned. Cleanliness should be required of all in their clothing, houses and yards; and the children should have a nurse-an experienced old woman- to look after and provide for them; and further, nothing can so much contribute to the good health of the negroes, as the strict enforcement of the system of discipline and police hereinafter proscribed.

The majority of his advice was either common-sense and consistent with the emerging hygiene movement. However, Randolph took his advice a step further and advised his readers to become armature healthcare providers. A manager should only contact a physician for cases that he cannot treat himself. Randolph acknowledged that despite the best practices in Early nineteenth century sanitation:

[A]s cases of sickness will occur, it is absolutely necessary that you should have some knowledge upon the subject, so as to be able to distinguish a fever by the pulse, as well as to know the different degrees of it-to know the symptoms of ordinary diseases, so as to be able to distinguish one disease from another, and to apply the proper remedy….you will be provided with suitable medical books of common practice for reference. The careful reading of such books, together with careful observation and experience, will soon enable any sensible man to know there is really any sickness, what the nature of it is, and how it should be treated, or satisfy him that the case is beyond his control or management, and that he should call in the aid of a physician. You should constantly keep on hand a good supply of well assorted family medicines.

He then specifically said each plantation should at least have:

One medicine chest containing and to be kept supplied with Calomel, Caster Oil, Epsom Salts, Spirits Camphor, Spirits Nitre, Spirits Hartshorn, Rhubarb, Ipecac, Jalap, Hive Syrup, Dover's Powder, Nagnesia, Paregoric, Laudanum, Opium, Blister Plaster, Scales
In sum, Randolph argued that slave health should be a paramount concern for any plantation manager and then set forth specific criteria for how a slave owner plantation manager should promote or restore slave health. In Randolph’s framework, slave health was an essential ingredient to running a lucrative plantation. When interpreted through the capitalist frame, plantation manager’s interest in slave health only extended to squeezing more labor out of his human chattel.

Despite Randolph’s paternalistic language about how slave owners should care for their slaves, every piece of advice in his book helped to sell copies of that book. If plantation owners wanted to buy books that supported their own paternalistic ideas, Randolph was more than happy to sell those books. For Randolph, scientific slave management was big business. He advertised his book in the widely circulated *De Bow’s Review*. The advertisement priced the book at $2 per copy or six copies for $10. Randolph, unafraid of self-promotion, claimed “this book is [by] one of the best and most systematic farmers in Virginia; and experienced farmers have expressed the opinion, that those who use it will save hundreds of dollars.” Readers clearly understood the subtext – if they spent a few dollars, they could make fantastical sums using Randolph’s methods – and feel they fulfilled their paternalistic duties too.

Accolades that supported Randolph’s claims illuminated that issue of *De Bow’s Review*. James Dunwoody Bownson De Bow (1820-1867), the journal’s editor, wrote “in truth, we consider [Randolph’s book] an invaluable work for planters.” The advertisement quoted the *Richmond Dispatch* as saying Randolph’s book “will prove a most valuable assistant to the

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planter, manager or overseer, and a work that will facilitate them greatly in the transaction of business.” *The Southern Planter* urged “[W]e hope many Farmers will buy the work, and make an effort to keep things straight” and *The Richmond Enquirer* added the book “is full of useful information.” All of these accolades helped bolster the book’s reputation – and probably Randolph’s profits too. The pursuit of profit motivated every facet of the plantation economy; and that pursuit rested at the heart of scientific slave management.

**The Physician and Slave Industry Alliance**

Throughout the antebellum South, physicians formed relationships with the slave industry. Often working for an industry rooted in the valuation and sale of human beings, physicians offered their knowledge and services for a price. The slave industry employed physicians for two distinct reasons. Physicians treated sick or injured slaves to both preserve their capital value and productivity. Physicians also offered those buying and selling slaves their professional opinion on a slave’s health. Throughout the antebellum South, physicians sustained and enriched themselves with money stained with the blood of enslaved humans.

Antebellum Southern physicians often kept account ledgers. Thomas Martin Dunn, a physician from tobacco growing Albemarle County, Virginia, recorded in his ledger separate accounts for each of his clients. The account of Mr. Douglas reflects that on April 8, 1861, Dunn charged Douglas $7.00 for services rendered for a “visit to negro child” (See Figure 2).

The only record that survives from Dunn’s visit to this enslaved child is simply the value of services Dunn rendered to the child’s owner, Mr. Douglas. The historical record reflects that the money

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77 Thomas Martin Dunn, *Medical Records*, Manuscript, Small Special Collections Library at the University of Virginia, MSS 14266.
that changed; it does not note the outcome of Dunn’s care, the child’s ailment, or even the child’s name.

Figure 2: Mr. Douglas’s Account in Thomas Martin Dunn’s Ledger. The document lists the date of a medical service, the service, and the charge for the service. The original manuscript is held in the Small Special Collections Library, The University of Virginia, MSS 14266.

Typically slave records took this particularly clinical and pecuniary tone. On July 12, 1823 slave owner M. Jones wrote to Charlottesville, VA physician James Carmichael (1771-1831):

I have sent a Girl belonging to the
Chatham Estate - to you - She has been much
troubled with boils for some weeks past, & appears
to be in bad health, You will please direct what
You think best for her, & I will have her attend
=ed to on Mo W. Jones’s account

Jones only thought it pertinent to convey in writing to Carmichael the patient’s location, clinical symptoms, and a billing address. The tone does not express an emotional concern for the slave girl’s health — he does not even include her name.

In contrast, slave owners often displayed great emotional concern about the health of their legally recognized offspring.\textsuperscript{79} Lucy Alexander pleaded with Carmichael to visit her “poor little Daughter” who “is very ill I never saw a child of her age so affected before in my life.” Alexander described at great length that her daughter was “weak with a regular intermittent fever” and “complains of great pain in her head and her eyes are very much effecte particularly her left eye.” Alexander ended her letter with a concerned parent’s plea: “I shall take it a very great favour if you will write me and send medicine for her and also come and see her to day or tomorrow at any rate as she is really in need of more assistance than I am able to afford myself with great respect I am your friend.”\textsuperscript{80} The mother’s concern for her sick child reached Carmichael’s eyes. He, along with other antebellum physicians, saw Alexander’s child and other children of slave owners as patients in pain. Only enslaved patients were reduced to clinical and financial descriptions.

**Body Values and Slave Breeding**

When plantation masters traded slaves, the masters had a vested financial interest in understanding slave health. Three of the largest determining factors in how the slave industry valued a slave was the slave’s susceptibility to disease, the slave’s strength and age, and the slave’s potential to reproduce. Masters regularly sought physician’s insights into a slave’s health to determine how to value the slave. Better information could lead to large bargains – and avoiding scams – on valuable human chattel.

\textsuperscript{79} The children who society at the time recognized as the person’s legal decedents. This does not include children born from non-legally recognized relationships.

\textsuperscript{80} “Letter from Lucy Alexander, September 11, 1826” in The Letters to Doct. James Carmichael & Son.” Historical Collections at the Claude Moore Health Science Library, University of Virginia, 2005.
According to the trans-Atlantic slave database, approximately 389,000 enslaved Africans disembarked ships in ports of the United States or its colonial predecessors. Yet, by the outbreak of the Civil War (1861-1865) in 1861, over four million slaves toiled in the American South. This more than ten-fold increase in the population, despite the incredible lethality of certain types of slave agriculture, presented a massive opportunity for enterprising slave owners in Virginia to sell slaves through a domestic slave system. William Wells Brown (1814-1884), in his narrative of his time in slavery, remembered that slaves, upon hearing they would be sold further south, would sing:

See these poor souls from Africa
Transported to America;
We are stolen, and sold to Georgia,
Will you go along with me?
We are stolen, and sold to Georgia,
Come sound the jubilee!

See wives and husbands sold apart,
Their children's screams will break my heart;--
There's a better day a coming,
Will you go along with me?
There's a better day a coming,
Go sound the jubilee! 

The song’s heartbreak jumps off Brown’s page. The fact that this was a well-known song supports the idea that the domestic slave trade touched the minds and hearts, if not directly the bodies of slaves throughout the antebellum South. Brown’s song is consistent with historian Edward Baptist’s maps that show the domestic slave trade facilitated the geographic spread of slavery from 1800 to 1860 (Figure 3).

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Figure 3: Maps of the Expansion of Slavery from 1800 to 1860. Following the closure of the international slave trade in 1808, Virginia Plantations became the largest supplier of slaves to the Deep South. Image from Baptist, *The Half Has Never Been Told*, xii.
Market forces drove slave owners – particularly those who owned tobacco plantations – to value the ability for slaves to reproduce.\(^{83}\) The United States Congress acted upon its authority under Article 1 of the United States Constitution to abolish the international slave trade in 1808. Virginia slave owners, led by President Thomas Jefferson (1743-1826), pushed the law through Congress. They understood that once the international slave trade was abolished, the only legal source of slaves would be from within the country. After nearly two centuries of intensive farming, extraction economies reduced the Upper South’s ability to produce its original cash crop - tobacco. Slave owners realized that their slaves were a commodity that – much like livestock – could be raised and the sold on the market. The Virginians pushed for the end to the international slave trade to box out international competitors.\(^{84}\)

Once Congress created the closed domestic slave market in 1808, the slave trade benefited from the internal differential health risks of the slave system. Tobacco plantations, while often unhealthy,\(^{85}\) had significantly longer life expectancy for slaves than the Deep South’s sugar and rice plantations.\(^{86}\) The less economically valuable, but healthier tobacco plantations of the Upper South converted to raising a more lucrative crop: human beings.\(^{87}\) These plantations became the primary source for new slaves in the United States. Traders then moved these slaves south to meet market demand on more lethal rice and sugar plantations. The explosion of cotton planting in the antebellum also drove slave demand in the Deep South. The slave system exploited the differential health environments between different agricultural regimes when it

\(^{83}\) See Chapters 1 and 2 in Sublette, *The American Slave Coast*, 3-21.
\(^{84}\) Sublette, *The American Slave Coast*, 15.
\(^{85}\) See Chapter Two.
\(^{86}\) See Tadman, "The Demographic Cost of Sugar."
\(^{87}\) Ned and Constance Sublette use language that suggests The South produced people as a cash crop. See Sublette, *The American Slave Coast*, 11.
moved human chattel from healthier tobacco plantations to more lethal types of plantations.\(^\text{88}\)

Slave health drove slave supply and a portion of demand; and by extension a piece of the domestic slave trade.\(^\text{89}\)

The human crop needed financial appraisal, and slave owners and traders recruited antebellum southern physicians to help reduce the value of a human life to a dollar value. Physicians profited handsomely from offering their clinical judgement to slave owners.

Frederick Gardiner, a Mormon traveler who lived in New Orleans between 1849 and 1851, recalled in his memoir:

There are a great number of Negroes, nearly all of whom are Slaves [in New Orleans]. And on different Streets are large halls occupied as Marts or stores, for the sale or purchase of Slaves.... All are dressed up for Sale. While I have been looking at one of these places on Gravier Street, Two Gentlemen arrived, one of whom I have See in the Saloon, he is a young Planter and come to purchase a girl to take care of his children, or whatever duties he may thing proper to impose upon her. The other person is a Doctor whom he has brought with him for the purpose of examining her. They pass along the front of the row in company with the agent or Salesman. As they move forward One is called upon to stand up, then another while a passive examination is made. Then finally he discovers a bright mullatto, who appears about 16 years of age, and is quite good looking. She is ushered into a private room where she is stripped to a nude condition and a careful examination is made of all parts of the body by the Dr. and is pronounced by him to be sound. The money is then paid and she is transferred to her new owner.\(^\text{90}\)

\(^\text{88}\) This thesis is the first to explicitly argue that the differential health environments that arose in different agricultural regimes drove the slave trade. Michael Tadman, “The Demographic Cost of Sugar,” recognizes that plantation crop impacted the rate of slave increase or decrease. He directly ties the lethality of sugar plantations to their demand for slaves from the domestic slave trade. While tobacco plantations were unhealthy, but it was not as lethal as sugar plantations. However, Tadman advances the idea that a differential in plantation health environments, based upon the plantations geographic location, drove the slave trade. This thesis disagrees. Rather, it holds that the health environments that arose out of each plantation agricultural regime’s unique labor patterns significantly drove the domestic slave trade. Geography certainly played a role, but it was not the exclusive factor. Additionally, Sublette, The American Slave Coast identifies that Chesapeake tobacco slaves died at lower rates than those employed in other types of agriculture.

\(^\text{89}\) See Sublette, The American Slave Coast.

\(^\text{90}\) Frederick Gardiner, A Mormon Rebel: The Life and Travels of Frederick Gardiner, (Salt Lake City, UT: University of Utah Library, 1993), 18.
Gardiner heavily implies that the physician certified the sixteen-year-old girl sound for slave breeding. The physician and planter believed she could produce children who, pursuant to Louisiana’s *partus sequitur ventrem* doctrine, would be a slave. The plantation owner appraised her financial value based upon her ability to produce him new human chattel. While it remains unknown exactly what happen in that private room, the doctor’s “careful examination…of all parts of the body” likely included an invasive genital examination. Reading between the lines, the physician, and perhaps the planter, sexually assaulted this enslaved girl during the examination. Gardiner’s matter of fact tone reflects that scenes like this played out daily across the entire antebellum South.

**Medical Experimentation**

Physicians conducted medical experimentation in the antebellum South to learn more about the human body and to solve the local population’s health challenges. However, in the antebellum South, the population of interest to enterprising physicians was often enslaved. Physicians offered slave masters free treatment for a sick or injured slave in exchange for permission to conduct experiments on the slave’s body. In ante-bellum Virginia, 48.7% of medical journal articles detailed experiments physicians conducted on black bodies. Slaves who suffered from chronic medical conditions, such as epilepsy, often endured long-term medical experiments.

Physicians did not provide this free care out of pure altruism. Rather, they gained in a number of ways. Some simply became famous. Others found financial success in the sale of

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91 For a discussion of this incident in context of medical exploitation, see Washington, *Medical Apartheid*, 43.
cures, remedies, and potions. Thomas Jefferson, the third President of the United States and a Virginia slave owner, volunteered his slaves for experimental vaccination instead of the standard inoculation. The trial ultimately led to widespread acceptance of the Jenner smallpox vaccine.\textsuperscript{94} Undoubtedly, these experiments spared thousands of Americans, both black and white, the horrors of the eighteenth century’s most feared disease. Fame, money, and broader concepts of the general welfare all flowed through the minds of Early America’s medical experimenters.

Physicians who wanted to build their practice took on the pressing health challenges that befell the local population. As previously noted, slave owners took particular interest in the fertility of female slaves. Physician James Marion Sims (1813-1883) of Alabama recognized that injuries to a female slave’s vagina could prevent her from reproducing – and producing more valuable chattel. Specifically, Sims noticed that some enslaved women suffered from vesicovaginal fistulae, which are potentially life-threatening tears to the vaginal wall induced during childbirth or aggressive vaginal penetration.\textsuperscript{95} The vesicovaginal fistulae prevented enslaved women from delivering future children – and thus producing future slaves.

Sims experimented on enslaved women who presented with vesicovaginal fistulae from 1845 to 1849. He built his own clinic – a series of rudimentary wood buildings – and promised slave masters he would lodge, feed, and attempt to cure the women in exchange for the opportunity to experiment on their bodies. Historian Harriet A. Washington argues that Sims developed his method with the ultimate intention of developing a surgical procedure he could


market to wealthy white women who also presented with vesicovaginal fistulae. Indeed, Sims successfully developed a surgical method to repair the vesicovaginal fistulae and subsequently in 1852 published the method in the prestigious *American Journal of Medical Science*. Apart from fame, the slave systems’ desire to enhance the reproductive capacity of enslaved women likely motivated Sims too. He wrote in a preface to the article he published a year later that while he would have preferred to remain in the slave South, "Having suffered so long from climate influences, I have at length, much against my will, been forced to abandon my Southern home, and seek another, amongst strangers, in a higher latitude." Had illness not driven Sims from Alabama, he would have continued profiting from performing his novel surgical intervention on both enslaved and free women.

Sims soon built a thriving practice in New York City where he developed a reputation as the country’s leading gynecologist. He attended to the rich and famous, including the Empress Eugenie and other members of the French royal family. Into the twenty-first century, Sims is regarded as “the founder of modern gynecology” and a statue lauding his achievements looms over park-goers in New York City’s Central Park (see Figure 4). It makes no mention of his experiments on enslaved women.

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97 Sims, *On the Treatment of Vesico-Vaginal Fistula*.
Parasitic worms were also a significant disease of inquiry in the American South.99 Worm infestations in a person’s bowels affect the digestion and excretory systems. Specifically, these worms cause intestinal bleeding, diarrhea, and the inability to absorb vital micronutrients.100 Taken together, these a slave who experienced symptoms of a worm

99 For a discussion of hookworm in the American South, see Alan I. Marcus, “The South’s Native Foreigners: Hookworm as a Factor in Southern Distinctiveness,” in Disease and Distinctiveness in the American South, Todd. L. Savitt and James Harvey Young, editors, (Knoxville, TN: The University of Tennessee Press, 1988), 82-83.
infestation had a decreased ability to perform hard labor and an increased nutritional need. Parasitic worms leached slave owner profits too. As previously discussed, Landon Carter often treated slaves infected by worms with mercurial compounds.

However, in an article published in 1849 in *The Southern Medical and Surgical Journal*, newly minted physician John D. Twiggs explored what he considered a promising new approach. His article, entitled “Therapeutic Effects of Tobacco,” provides insight into how a young and professionally trained Southern country physician conceptualized medical research. The study illustrates the information that he thought was important to include in a peer-reviewed scientific publication. His article would be published in both *The Southern Medical and Surgical Journal* and then republished in *The Western Medical and Surgical Journal*.

Twiggs wrote in “Therapeutic Effects of Tobacco’s” first line that the study’s objective was “to test the vermifuge properties of tobacco placed on the abdomen.” Twiggs developed this idea based upon a previous essay, read before the Medical Society of Augusta in 1839, that suggested pediatric patients who suffered from parasitic worm infections would benefit from an alternative to the standard long-term administration of anthelmintics. The essay characterized the anthelmintics available in the Early American South as “the most nauseating drugs.”

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103 Twiggs, “Therapeutic Effects of Tobacco,” 641.
Twiggs’s article directly responded to this challenge of finding a better therapy. He theorized that tobacco, if applied externally, would expel worms without the harmful nauseating effects. Writing decades before chemists understood matter on the molecular level, Twiggs believed the route of administration was directly related to the drug’s physiological effect. While modern science supports this believe as fundamental principle, the route itself is less important than the pharmacologically active ingredient’s potency and ability of the active ingredient to enter the organism. In short, modern science supports the idea that route can matter, but only when considered with many other factors.

To test his hypothesis, Twiggs devised three series of experiments. In the first series, he placed tobacco on the abdomen of 5 children, ranging from 5 to 8 years old. He wetted the tobacco with water in cases one, three, four and five. He does not mention the addition of water in case two. Twiggs then palpated the child’s pulse at intervals ranging from 30 minutes to 2 hours for six and a half hours after tobacco placement. He then administered a laxative to the child and recorded the number of worms defecated and the mortal status of each worm. He also made sporadic observations such as “eyes watery, an acceleration of pulse and a disposition toward sleep.” The results are summarized in Table 3. Twiggs did not identify the name of any of the children. He simply indicated they were “negro,” and thus presumably enslaved.

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**Table 3: Summary of Twiggs’ First Series of Tobacco Experiments.** Note the data reflects Twiggs’ degree of specificity.

In the second series, Twiggs placed tobacco on the abdomen of four children. Of these children, only the first and third definitively received wet tobacco. The other two simply received tobacco with no indication of whether Twiggs added water. The results are summarized in Table 4. Twiggs listed the name and a brief family medical history for each of these children. He even indicated Robert, a 2.5-year-old toddler, was “mulatto.” It is likely these children were slaves. Twiggs’s inconsistent experimental methodology occludes their status.

**Table 4: Summary of Twiggs’ Second Series of Tobacco Experiments.** Note the data reflects Twiggs’ degree of specificity.

In the third series, Twiggs placed tobacco on the abdomen of seven children, all of whom were younger than in the previous two series. In this series, he placed tobacco, of unknown moisture content, on the abdomen of the seated children. Twiggs observed his subjects for 10

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110 See Kenny, “‘A Dictate of Both Interest and Mercy.’”
111 Twiggs, “Therapeutic Effects of Tobacco,” 646-647.
hours, removed the tobacco, and then noted again in the morning the number of worms passed when the children defecated. Interestingly, he did not include accounts of each case; rather he wrote “[m]inute records were kept in each individual case, but as they were very similar to each other and those already detailed, they are omitted, as a narration of them might prove more tiresome than interesting.”

Across the three series, Twiggs reported several commonalities. The children all experienced tachycardia\textsuperscript{112} and the urge to defecate. Many also experienced the urge to sleep and increased tear production. Seven of the children defecated worms and nine did not. All of the children survived the experiment.

Twiggs thought these results were favorable.\textsuperscript{113} Given that he had not previously confirmed that each child suffered from a parasitic infection, he theorized the children who did not defecate a worm may have not been infected at all. He was pleased that the majority of the worms the children did defecate were dead. Given his perceived success at finding an alternative to the standard anthelmintics, Twiggs concluded “if [these experiments] only serve to excite others to make more numerous and varied experiments, we will be satisfied with the belief that our task was not in vain.” He had not found the perfect cure for parasitic worms, but in his investigation lay the promise that one could eventually be found.

Sims and Twiggs’ experiments are two of many examples in which white Southern physicians performed medical experiments on slaves. They did so to seek their own fame and fortune – and often allied with slave owners’ goals of workplace productivity and slave reproduction.

\textsuperscript{112} Increased heartrate.
\textsuperscript{113} Twiggs, “Therapeutic Effects of Tobacco,” 647.
Conclusion

The slave industry devoted much time to caring for, and learning about, slave health. Some slave owners, such as Landon Carter, attempted a do-it-yourself approach. Others employed physicians to preserve the financial value of its human chattel. Most physicians handsomely profited from arrangements, and some used slaves as test subjects in medical experiments. Health was firmly at the center of an “economy in which people were capital, and children were interest.”

Chapter Two: Diseases Throughout the Early American Tobacco Industry

On Saturday, June 23, 1770, Landon Carter, a Virginia plantation owner, was seized by rage. Once again, his tobacco fields were unproductive. Everything was wrong: as he surveyed his plantation, he saw plants turning yellow, parched fields, and slaves that were either sick or scheming to not work. "Quite disheartening," Carter characterized the whole situation in his diary.

Between comments on his tobacco and corn plants, Carter carefully detailed the status of his slaves. He wrote:

There are but 13,000 Tobacco hills to be turned this day and they may be done plentifully by the gang [of slaves]. The [slave] women who fainted yesterday have two of them gotten to work very well. The other two, I suppose, near the period of the return of their fever and ague, have still sick stomachs and headach [sic]. I have ordered them another vomit and have given direction if the weather should be hot to let the women sit down for about an hour at midday.  

It is impossible to precisely diagnose the cause of this slave woman’s illness. However, this chapter proposes that a plausible cause is that the tobacco plants she was tending to may have poisoned her. She likely fainted with nicotine rich tobacco juice on her hands.

This chapter scours primary source and archeological evidence to trace the patterns of disease the Early American tobacco industry caused among its enslaved workers. When considered in light of early twenty-first century medical knowledge, the evidence suggests that a spectrum of diseases afflicted slaves throughout the industry. Some diseases were primarily seasonal while others were omnipresent. Plantation owners and factory owners actively and

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116 Carter, The Diary of Colonel Landon Carter, 426. Carter indicated prior that the woman was a slave, but referred to her in this passage simply as “the woman.”
knowingly caused some of the diseases while others the slaves themselves probably did not attribute to the tobacco industry. Nevertheless, these diseases constitute an important facet of the slave experience.

No perfect evidence exists to prove definitively prove that a slave experienced a certain disease. The primary sources were created long before the advent of “germ theory,” never mind the ability to confirm cases of a disease in a laboratory. The sources themselves, like all sources, reflect the author’s viewpoint. Medicine is often a descriptive science. The contents of a case description are the basis for further analysis. An author’s decision to include (or omit) a specific fact can radically alter the suspected etiology of a disease. Yet, despite these inherent imperfections, these sources provide useful insights into the diseases that afflicted the tobacco industry’s enslaved workers. This chapter offers suggestions, rather than diagnoses, about the diseases that could correspond to the symptoms described in Early American primary sources. Working within disease historian Margaret Humphrey’s framework, these suggestions are supported, but not proven, by the evidence. This chapter does not attempt to clinically diagnose any specific individual.

The method that underlies this chapter is based upon two premises. The first is that the nicotine molecule, which is produced by tobacco plants, is toxic to humans (See Introduction). When the molecule enters the human body, it wreaks havoc on various processes that are used to maintain homeostasis – often resulting in disease. The second is that applying a “contact tracing” methodology illuminates where nicotine and nicotine production caused disease. This

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117 A diagnosis implies a much higher degree of certainty than suggestion.
118 Humphreys, Malaria, 2.
119 The Centers for Disease Control and Prevention (CDC) defines contact tracing as finding anyone who has come in direct contact with a sick patient. In this paper, I broaden the definition to include anyone who came in contact with nicotine or nicotine production. For the CDC’s
chapter traces the path of the molecule through the fields where tobacco plants synthesized the molecule to factories where tobacco leaves were processed into a variety of commercial products. Each point where an enslaved worker touched tobacco represented a point of entry for nicotine molecules into the slaves’ bodies to cause disease. This chapter looks at both the diseases that nicotine itself caused and those incidental to the tobacco industry as a whole.

Apart from nicotine poisoning, the tobacco economy directly caused other diseases within its enslaved African American population. Slaves were exposed to different ailments at different points in the tobacco production (planting, growing, and harvesting) and processing chain. Repetitive stress injuries were common during the production process while the slaves who worked in factories that processed tobacco suffered from respiratory disorders. Throughout the industry, slaves suffered from heat injury. Compounding these ailments, owners and overseers, often in the pursuit of greater profits or social control, routinely inflicted psychological abuse and physical violence against their slaves.

This chapter shows that nicotine, and the pursuit of nicotine, underpinned the disease experience of enslaved African Americans throughout the tobacco industry. It is arranged by source. This structure highlights the author’s vantage point and provides insights into what the author chooses to include – or omit. The first section focuses on Landon Carter’s descriptions of tobacco field slave disease symptoms. The second frames John D. Twiggs’ medical experiment as the clearest known documentation that Early American slaves who touched tobacco leaves suffered from acute nicotine poisoning. The third section examines tobacco

\[\text{definition in the 2014 Ebola Outbreak, see Centers for Disease Control and Prevention, \textquote{“Contact Tracing,” September 25, 2015, https://www.cdc.gov/vhf/ebola/outbreaks/what-is-contact-tracing.html.}}\]

\[\text{\textsuperscript{120} Also discussed in Introduction.}\]
plantation health through the eyes of escaped slaves. The fourth incorporates archeological evidence from Thomas Jefferson’s Monticello plantation. The fifth again uses narratives of former slaves, but focuses on the diseases in urban tobacco factories.

**The Diseases a Plantation Owner Saw**

As previously described, Landon Carter was a wealthy Virginian who took a special interest in health (See Chapter One). Throughout his meticulous and well preserved diary, he commented on the health of both his nuclear family and his enslaved property. He was also an amateur apothecary and often experimented with his concoctions on his slaves. Unlike many wealthy Virginia slave owners, Carter micromanaged his plantation and frequently ventured into the fields for updates on progress or to inspect his crops. Thus, Carter constructs a uniquely high resolution image of the diseases that afflicted his slaves.121

Directly following his account of the slave woman fainting, Carter wrote:

> It seems they will not finish turning the Tobacco hills this day though the whole gang with but two sick….The pretense is the ground has grown hard near the Cowyard. It may be so but I believe it is rather too hot for the people to work.122

Heat injury was a constant health risk for tobacco slaves – so much so that even Carter, a slave owner, recognized the risk. In this case, he chose to preserve his slaves’ health until conditions were safer. It is important to note that heat injury was a particular risk on tobacco plantations because it was a co-morbidity for nicotine poisoning. Extreme heat and nicotine molecules worked in concert to overwhelm a slave’s body more quickly than either could independently.123

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121 The tobacco plantation conditions Carter described characterized many plantations throughout Early America’s tobacco growing Mid-Atlantic region. Thus, while Carter’s observations about slave health were specific to his own plantation, they reflect slave health on tobacco plantations throughout the region.


123 Conditions such as pregnancy, febrile illnesses, or dehydration from vomiting or diarrhea could also work with nicotine and extreme heat to overwhelm a tobacco slave’s body.
He recognized his position as the slave owner provided him significant control over all facets of his slaves’ bodies—including their health. In this specific case, he used that position to preserve their health.\textsuperscript{124}

In August of 1766, Carter noted a case in which nicotine and heat probably collaborated in a slave’s body—and to a tragic end. Carter wrote, “On the 8th of this month my Wretch Mary did fell down with heat and I do suppose from some cause of sickness not before discovered she died in less than 3 hours. The first instance I have ever had of this kind.”\textsuperscript{125} The nicotine in the tobacco juice on Mary’s skin probably dehydrated her to the point that the day’s extreme heat caused her to enter multisystem organ failure—and ultimately die.\textsuperscript{126} The developments shocked Carter—but it remains unknown if it was a sympathetic or economic shock, or both, that passed through Carter’s mind.

Apart from these specific descriptions of disease, Carter provides an extraordinary window into disease burdens on Early American tobacco plantations. Shortly after the June 23, 1770 episode described in the introduction, Carter commented on Wednesday, June 27 that 10 out of his 32 slaves were too sick to work; 31.3% of his workforce claimed to be sick.\textsuperscript{127} The disease burden dramatically reduced the available labor pool. However, this passing reference does not imply that nicotine poisoning or heat stroke were the causes of those ten slaves’

\textsuperscript{124} See Chapter One for a detailed discussion of how Carter attempted to protect the health of his slaves.
\textsuperscript{125} Carter, \textit{The Diary of Colonel Landon Carter}, 326.
\textsuperscript{126} In the absence of quantitative temperature models for the summer of 1766, it is impossible to explain why Carter had not previously observed a slave dying from heat stroke. Carter’s qualitative clues that it was “extremely hot every day” suggest that early August, 1766 was abnormally hot. Thus, it is reasonable to suggest that while in normal summers Carter’s slaves did not suffer from fatal heatstroke, in August 1766, nicotine poisoning combined with the abnormally high temperatures to kill Mary.
\textsuperscript{127} This is the only epidemiological survey of an Early American tobacco plantation. See Carter, \textit{The Diary of Colonel Landon Carter}, 428.
illnesses. Early American slaves were exposed to a variety of disease causative agents. In addition, slaves claimed illness to avoid work and retain control over how they used their bodies. Regardless of the reason a slave was deemed too sick to work, illness significantly impacted the daily life and productivity on Carter’s Sabine Hall plantation. Illnesses most likely appears in Carter’s Diary because he noticed it if they cost him money.

Despite Carter’s interest in slave health, he was perfectly willing to employ physical violence against his slaves if they did not meet his production goals or other expectations. He wrote on Thursday, June 28, 1770 that:

Mary Ann worming my tobacco had but a few rows this morning to finish the ground she was in and has not in 12 o’clock got into another piece. Indeed, she laid a foundation for this lazyness [sic] for after I came away she sent me there was an abundance of worms and she wanted Sukey, I suppose to keep her company in her lazyness [sic]. But she shall have but one reproof more and the next shall be a sound whipping.  

Once he decided Mary Ann was choosing to not work rather than ill, he was willing to use physical violence to coerce her to work. In this entry, Carter revealed that he valued his slave’s economic productivity over his slave’s health. In this case, Carter’s ability to inflict pain and harm Mary Ann’s health showed that he controlled her body. His threat to whip Mary Ann for economic reasons demonstrated he saw health as a coercive tool he could use to increase his profits. Carter placed slave health secondary to his own financial health.

**Twigg’s Experiment Reframed: Nicotine Poisoning**

Physician John D. Twiggs’ 1849 experiment clearly documented that Early American slaves who touched tobacco leaves suffered from acute nicotine poisoning (See Chapter One). After Twiggs placed tobacco on the abdomen of enslaved children, the children experienced

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128 Carter, The Diary of Colonel Landon Carter, 430.
tachycardia, urge to defecate, and urge to sleep. In light of their prolonged exposure to tobacco leaves, these symptoms strongly suggest the children suffered from acute nicotine poisoning.129

While Twiggs studied enslaved children in a clinical setting, this thesis holds that the symptoms Twiggs described also impacted tobacco workers. Both groups had long-term exposure to often wet tobacco leaves. Nicotine molecules passed from those leaves into the slave’s bloodstream – poisoning him or her. The previously discussed passages from Landon Carter’s Diary could describe this type of acute nicotine poisoning, but they do not control for external variables to the extent that Twiggs’ scientific study did. Early American slaves suffered from acute nicotine poisoning, and John D. Twiggs – accidentally – documented the disease.

The Diseases Slaves Wrote About

Carter’s view was not shared by the African American slaves. For them, tobacco agriculture threatened slaves’ health. This section uses published slave narratives to demonstrate that African American slaves recognized this threat.

The earliest reference to tobacco harming a slave’s health appeared in the narrative of an escaped slave named Job, published in 1734.130 Thomas Bluett, an Englishman who knew Job from his time in the colony of Maryland, wrote the narrative on Job’s behalf. In the introduction, Bluett noted that Job specifically asked Bluett to write the narrative. Nevertheless, Bluett clearly influenced the work.

The narrative makes only a passing reference to Job’s enslavement in the tobacco fields. Bluett wrote that Job was sold to a “Mr. Tolsey in Kent Island in Maryland, who put him to work in making Tobacco; but he was soon convinced that JOB had never been used to such Labour.

129 Schep et al., “Nicotinic plant poisoning.”
He every Day shewed more and more Uneasiness under this Exercise, and at last grew sick, being no way able to bear it.”

Bluett’s description lacks the resolution to conclude that the tobacco fields poisoned Job or that he suffered from any of the tobacco production diseases previously discussed. Nevertheless, it suggests that both Job, and his associate Bluett, believed there was a clear link between labor in the tobacco field and Job’s illness. Further, even Tolsey recognized the connection. Upon realizing that Job was no longer economically productive, Bluett wrote that Tolsey “was obliged to find easier Work for him, and therefore put him to tend the Cattle.” For Tolsey, slave health was an economic issue; but for Job it was a natural rights issue.

The narrative of Lewis Clarke (1812-1897), published in 1845, contained one of the clearest descriptions of an injury directly resulting from labor in the tobacco fields. Clarke was held a slave for more than 25 years in Kentucky before he ultimately escaped to freedom. Once free, he wrote a narrative that David H. Ela, a Boston abolitionist, printed and then distributed.

Clarke, in his own voice, wrote “[w]hen stooping to clear the tobacco plants from the worms which infest them, a work which draws most cruelly upon the back, some of these men would not allow us a moment to rest at the end of the row.” The phrase “a work which draws most cruelly upon the back” likely refers to a repetitive stress injury caused by repeatedly bending down or kneeling in uncomfortable positions day in and day out. Plantation-based tobacco forced slaves to repeatedly inspect tobacco plants to remove worms that eat the plants.

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132 Louis Clarke, *Narrative of the Sufferings of Lewis Clarke*, (Boston: David H. Ela, Printer, 1845).
To remove those worms, slaves had to unnaturally bend over to review each leaf on the plant. This repetitive bending over for years caused slaves to develop debilitating injuries. Yet, in the pursuit of tobacco production and slave owner profits, owners and overseers considered the health of slave bodies operating expenses.

Figure 5: Hand drawn sketch of former slaves removing worms from tobacco leaves. This image was drawn by Nat Love (1854-1921), a former slave, depicting his tobacco farm after he was emancipated. The process of removing tobacco worms is the same as the one described by Clarke. Love published the image in his narrative. See Nat Love, *The Life and Adventures of Nat Love, Better Known in Cattle Country as Deadwood Dick*, (Los Angeles, 1907), 22.

Clarke went on to detail how slave overseers inflicted physical violence against himself and other slaves if they attempted to stand up straight and relieve the strain on their backs. He wrote that if he stood up:

> crack of the whip we were compelled to jump to our places from row to row for hours; while the poor back was crying out with torture. Any complaint or remonstrance under such circumstances is sure to be answered in no other way than by the lash. As a sheep before her shearsers is dumb, so a slave is not permitted to open his mouth.
Overseers used physical violence to maximize slave productivity and to silence slave dissent. Clarke implied the threat of physical violence, and by extension the harm of one’s health, was enough to stop “any complaint or remonstrance.” Just the threat of an overseer who carried a whip could psychologically manipulate slaves. Slave owners and overseers used physical violence, and the threat of physical violence, to exert control over slaves’ bodies.

John Thompson (1812-?), in his narrative of slavery published in 1856 after his escape from slavery, detailed how overseers used personal humiliation, in addition to whipping, to exert control over their property. Thompson worked in the tobacco fields and, just like Clarke, his overseer compelled him to inspect tobacco plants for worms. Thompson’s overseer, Mr. Wagar, had a particular technique to ensure his slaves removed every last worm. Thompson wrote “[i]t was a custom of Mr. Wagar to follow after the slaves, to see if he could find any left, and if so, to compel the person in whose row they were found, to eat them. This was done to render them more careful. It may seem incredible to my readers, but it is a fact.”

Wagar clearly intended this technique to humiliate and psychologically abuse his slaves in an effort to promote economic productivity and nurture the tobacco plants under his charge. Wagar prized tobacco, and by extension nicotine, production over the health of his slaves. This technique also appears in the 1856 narrative of Edward Hicks. It is reasonable to conjecture that overseers across on tobacco plantations the American South used this technique to psychologically abuse their slaves.

135 It is extremely difficult to retroactively diagnose a specific psychiatric condition from an edited narrative. Yet, it is reasonable to guess that Wagar’s repeated humiliations may have caused slaves like Thompson to develop a variety of psychiatric disorders.
Apart from the actual harvesting of tobacco, the Narrative of William Wells Brown contains a ghastly example of how a slave overseer used tobacco itself to torture a slave. Brown described in his bestselling 1847 narrative Major Freeland, who rented Brown’s labor, tortured his slaves. Freeland would bound the slave in a small barn and “would cause a fire to be made of tobacco stems, and smoke [the slave]. This [Freeland] called "Virginia play."” Brown described how, after a failed escape attempt, Freeland ordered his son Robert to smoke Brown. Brown recalled that the tobacco fire “soon set me to coughing and sneezing.” Only after Robert convinced himself that he gave Brown “a decent smoking” was he released and ordered to return to his normal slave duties. In the Freeland household, apparently slave torture was a family affair – and tobacco was one of the Freeland’s signature tools.

Brown’s description of the episode suggests that the Freelands used smoking to inflict several physiological conditions against Brown and their other victims. The coughing and sneezing is consistent with the hazards of smoke inhalation and probably was a precursor to suffocation. Additionally, since the tobacco stems burned via an incomplete combustion chemical reaction, the fire surely exposed Brown to highly toxic carbon monoxide poisoning. Carbon monoxide, even in very small amounts, rapidly outcompetes oxygen in oxygen carrying red blood cells. When the body loses the ability to effectively distribute oxygen, many cellular processes cease. If uninterrupted, the victim will eventually endure severe brain damage, enter multisystem organ failure, and ultimately die. Brown appears to have escaped the terminal effects of carbon monoxide poisoning but it is near certain that he was poisoned to some degree. Brown also may have suffered from nicotine poisoning via inhaled nicotine vapors. The tobacco

stem contain nicotine that aerosolized – along with other irritants – in the fire. These irritants likely caused the coughing and sneezing that Brown described. The nicotine specifically may have caused an adverse reaction. Brown’s account demonstrated that certain slave owners and overseers used tobacco, and potentially nicotine, as a weapon of torture that they designed to harm the slave’s health. Job, Clarke, Thompson, and Brown’s narratives contained many of the same threads linking tobacco production – and implicitly nicotine production – to slave health.

**Disease within the Slave Cabin:**

On tobacco plantations, the slave disease burden followed labor patterns that shifted with the seasons. The majority of diseases in spring, summer, and autumn related to the slaves working in the tobacco fields themselves. In the winter, slaves encountered different diseases while huddled in cabins. Yet these diseases are related to the tobacco industry because the slaves needed to live through the winter to begin the next agricultural season. In the winter, slave overseers also forced slaves to performed various tasks to prepare for the next year’s crops.

The major winter diseases that uniquely or disproportionately impacted slaves on tobacco plantations can be divided into two categories: cold related diseases and respiratory diseases. Infectious disease, while certainly a major burden on the slave population, also heavily impacted white overseers and owners.\(^\text{138}\) The focus of this chapter is on the diseases that uniquely or disproportionately impacted the slave communities that were held in the tobacco industry.

The major factor that drove the winter disease burden was the physical structures that housed the slaves themselves. Slaves lived in haphazard and above ground structures. Despite the more elaborate and far better constructed plantation houses that often sat only a few feet

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away, slaves lived in cramped and exposed cabins. The cabins afforded little insulation from the cold (See Figures 6A and 6B). Frostbite often maimed slaves. While two modern observational studies suggest African Americans are more susceptible to frostbite and generalized hypothermia than Whites, the genetic or biochemical etiology of this difference remains unknown. Historian Todd Savitt’s late 1970s attribution of these conditions to physiological differences between black and white metabolisms. This thesis argues that African Americans, who slave owners forced to live in haphazardly built cabins, were far more exposed to frostbite than the slave owners or their white families (See Figures 6A and 6B)

Figure 6A: Interior fireplace of a reconstructed slave cabin at Thomas Jefferson’s Monticello plantation. Note the gaps in the wall boards that allow light and outside air into the cabin’s interior. Photograph by Andrew Meshnick, all rights reserved.

Respiratory diseases also impacted slaves during the winter.\textsuperscript{142} Fireplaces, such as the one pictured in Figure 2, were the principal way in which slaves heated their cabins. In an effort to fight off hypothermia and frostbite, these slaves lit wood fires. Unlike in the slave owner’s house, slave cabin fireplaces were poorly ventilated and surely exposed slaves to significant amounts of particulate matter and smoke inhalation. That matter triggered asthma attacks and other respiratory diseases. In the warmer months, when slaves stopped lighting fires, the incidence of respiratory diseases also decreased. In contrast to the simple fireplaces in his slave’s cabins, Jefferson equipped his Monticello home with the state-of-the-art and better ventilated Rumford fireplace (See Figure 7).\textsuperscript{143}

\textsuperscript{141} Image from \url{http://www.npr.org/sections/alltechconsidered/2015/08/02/428126511/an-app-tells-painful-stories-of-slaves-at-monticellos-mulberry-row}
\textsuperscript{142} Savitt, \textit{Medicine and Slavery}, 51.
\textsuperscript{143} Anna Berkes, “Sir Benjamin Thompson, Count von Rumford,” \textit{The Thomas Jefferson Encyclopedia}, The Thomas Jefferson Foundation, Published 2 Nov 2010, Accessed 5 May 2017,
These diseases, which derived from drafty and poorly ventilated slave cabins, characterized tobacco plantations, but were not limited to them. Slaves on cotton, sugar, and rice plantations also lived in similar quarters – and likely suffered from similar winter diseases. However, tobacco plantation slaves clearly suffered from respiratory diseases and frostbite.

Urban Slavery: A Slave’s Perspective

By the antebellum, once the slaves grew, harvested, and cured the tobacco on the plantation and they then transported the leaves to centralized urban tobacco processing centers. In these factories, scores of slaves sitting in dark and cramped working conditions processed the raw leaves into commercially viable products. Henry Box Brown (1816-1897), a former slave, described the process in his 1849 narrative:

This work consisted in removing the stems from the leaves of tobacco, which was performed by women and boys, after which the tobacco was moistened with a liquor made from liquorice and sugar, which gives the tobacco that sweetish taste which renders it not perfectly abhorrent to those who chew it. After being thus moistened, the tobacco was taken by the men and twisted into hands, and pressed into lumps, when it was sent to the machine-house, and pressed into boxes and casks. After remaining in what was called the "sweat-house" about thirty days, it was shipped for the market.¹⁴⁴

Throughout this process, slaves, and the contract laborers who sometimes worked by their side, were exposed to numerous tobacco related diseases and disorders. Historian Todd Savitt argued that in the claustrophobic tobacco factories, urban “tobacco workers constantly inhaled nicotine and some, no doubt, suffered acute poisoning characterized by insomnia, headache, watery eyes, nausea, and vomiting.”¹⁴⁵ Savitt contends that while this acute poising was rare, the tobacco dust that the production process aerosolized also contained silica particles large enough to cause pneumoconiosis¹⁴⁶ – a lower pulmonary similar to black lung diseases.

In addition to the respiratory and transdermal route of nicotine exposure to which Savitt, escaped slave Henry Clay Bruce (1836-1902) described a third route of nicotine exposure he

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¹⁴⁴ Henry Box Brown, Narrative of Henry Box Brown, Who Escaped from Slavery Enclosed in a Box 3 Feet Long and 2 Wide. Written from a Statement of Facts Made by Himself, (Boston: Brown and Stearns, 1849), 41-42.
¹⁴⁶ Savitt refers to pneumoconiosis with the now archaic term “tobacosis.”
encountered in the tobacco factories. Bruce wrote that when he first started working in the factory:

I often fell asleep. I could not keep awake even by putting tobacco in my eyes. I was punished by the overseer, a Mr. Blankenship, every time he caught me napping, which was quite often during the first few months. But I soon became used to that kind of work and got along very well the balance of that year.  

Undoubtedly, when Bruce placed tobacco in his eyes, the nicotine crossed through the mucosal membranes into his vasculature. He used nicotine to stimulate his body an exposure that fundamentally changed Bruce’s internal biochemistry as his body adapted over the year to the work schedule and presence of nicotine.

Figure 8: A Slave in a Tobacco Factory. This image depicts a slave operating a piece of equipment in an Early American tobacco factory. Picture from Robert S. Starobin, *Industrial Slavery in the Old South*, (London: Oxford University Press, 1970), 16.

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In 1850, between Richmond, Petersburg, and Lynchburg, VA, over 6,000 slaves worked in tobacco factories. Nicotine, and the pursuit of nicotine in processed tobacco, defined the health dynamics for these urban tobacco slaves just as it did for Bruce and Brown. In some cases, the molecule explicitly poisoned them through transdermal, ocular, or inhalation routes. In other cases, the silica dust created as slaves processed the tobacco leaves caused slaves to develop respiratory diseases.

**Conclusion**

A close examination of diverse aspects of the historical record reveals that a unique patterns of disease was infused into the Early American tobacco industry. Plantation journals, slave narratives, and archeological evidence suggest that slaves suffered from a variety of diseases. The chapter examines how the patterns of disease followed seasonal variations in agricultural slave labor patterns. It also demonstrates that when profits were on the line, slave-owners and overseers chose to exacerbate or cause diseases or injuries amongst their slaves.

The tobacco industry coupled the pursuit of profits with the pursuit of nicotine. The entire tobacco slave industry was designed to produce nicotine rich tobacco leaves that could be sold to consumers throughout the country, and the world. Thus, the nicotine molecule, either directly or indirectly, underpinned both the health environment of the tobacco industry’s enslaved workers. Nicotine, or the tobacco industry’s pursuit of nicotine, caused workers to suffer from nicotine poising, heat stroke, repetitive stress injuries, respiratory diseases, frostbite, hypothermia, psychological abuse, physical violence, and torture. Tobacco agriculture and processing sickened and hurt slaves.

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Chapter Three: The Weaponization of Slave Health

My name is 'LIBERATOR'! I propose
To hurl my shafts at freedom's deadliest foes!
My task is hard-for I am charged to save
Man from his brother! - to redeem the slave!\(^{149}\)

In the 1830s, despite efforts at a sectional compromise, slavery emerged as a critical issue in American politics. When slave owning pioneers moved west and established farms, they force marched their slaves West too. The 1820 Missouri Compromise attempted to maintain a sectional equilibrium between slave and free states. Yet, the western movement, coupled with technological advancements, upset that balance as large tracts of new lands opened to cotton plantation slavery.\(^{150}\)

To combat the expansion of slavery, and by extension the representation of slave power in federal political decisions, anti-slavery activists launched a massive campaign to educate the public about the horrors of slavery. Anti-slavery printers like William Lloyd Garrison (1805-1879) in Boston created newspapers to organize the anti-slavery movement.\(^{151}\) These newspapers and the associated anti-slavery literature that would follow carried a massive diversity of opinions as to why slavery must be ended; and how it should be ended. Some authors focused on theological or moral arguments. Others wrote poetry or fictional stories that highlighted the plight of the slave. Perhaps the most moving pieces were the narratives by former slaves that graphically recounted in the first person the horrors of slavery. These authors

\(^{150}\) For a thorough discussion of how emerging cotton markets impacted the dynamics of American slavery, see Baptist, *The Half Has Never Been Told.*
intended their writings to shift their readers against slavery. Each anti-slavery writing was a shaft that the anti-slavery press hurled at the heart of slave power.

This chapter focuses on how the intellectual disconnect surrounding slave health led both the pro and anti-slavery movements to publish descriptions of slave health in an effort to advance their respective causes. This chapter refers to this process as “weaponization” because these advocates used these descriptions in what this thesis refers to as a “battle of ideas” over the question of whether the United States would remain a slave-holding nation. Abolitionists like Garrison considered this an all-out battle – one in which words were weapons and the laws were fortifications. Slavery apologists like John C. Calhoun (1782-1850) and Samuel A. Cartwright responded in kind. Ultimately, it would take the outbreak of the Civil War and the subsequent ratification of the 13th Amendment to the United States Constitution in 1865 to resolve the slavery question once and for all.

The first section of this chapter explores how anti-slavery writers weaponized descriptions of slave health to advance the anti-slavery cause. The second section explains how Samuel A. Cartwright, a New Orleans physician, fired back at the abolitionists. He argued, contrary to the anti-slavery descriptions, that slavery actually enhanced the health of slaves. In doing so, he advanced a biomedical justification for the chattel slavery of African Americans in the United States. The third section of this chapter delves into how these two narratives collided in a controversy over the Census of 1840. These three sections paint a portrait of how debates about slave health became one front in a much broader war over whether the United States should end slavery.¹⁵²

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¹⁵² Duffy alludes to this war in Duffy, “A Note on Ante-bellum Southern Nationalism,” 267.
By the 1830s, tobacco no longer drove the Southern economy as it did in the seventeenth century and early to mid-eighteenth century. Consequently, the battle of ideas over slavery focused on the entire slave system. It did not differentiate between slaves who worked on tobacco plantations and those who worked in the cotton fields. Despite the lack of specificity, this chapter presumes that in the broader battle of ideas, arguments over slave health inherently incorporated slaves who worked in the tobacco industry. Authors on both sides of the battle wrote pieces they intended to represent the entire slave system – including the tobacco industry. At times, they seized upon the side of the industry’s slave health disconnect that advanced their respective argument.

The Slave Narrative

The slave narratives discussed in Chapter Two were important political documents. Anti-slavery publishers consciously sought out slaves and helped them tell their stories. Groups such as the American Anti-slavery Society, which printer William Lloyd Garrison led, published tons of paper filled with the narratives of escaped slaves. The narratives are a window into the raw and graphic image of slave life in the Early American South.

This thesis presumes the authors of slave narratives wrote their accounts as political documents.\(^\text{153}\) Simply publishing the narrative on an anti-slavery printing press inherently made the narratives political. They were distributed throughout the North to galvanize anti-slavery sentiment.

This section applies a political lens to the narratives of slaves who labored in the tobacco industry (See Chapter Two). The narrative of Lewis Clarke used the story of slave health to show a self-evident truth: slaves were humans and shared the full extent of human emotion and capacity to suffer. These stories humanized slaves in an effort to bolster public support for the anti-slavery movement. The movement used these stories to move minds in the battle of ideas.

Lewis Clarke’s *Narrative of Sufferings*, which anti-slavery printer David A. Ela published in 1845, graphically detailed how slave masters abused Clarke and harmed his health in the tobacco fields. *The Narrative* transported Northerners into the South’s tobacco fields. Respectable men and women in Boston could imagine the pain of a slave forced to bend over all day to harvest tobacco or the humiliation of an overseer forcing a slave to eat a tobacco worm. After reading Clarke’s *Narrative*, Northerners must have found themselves left with the bitter taste of slavery in their mouths.

In the preface to the *Narrative*, J.C. Lovejoy, a longtime associate of Clarke, framed the entire work as a political document. Lovejoy recalled that when he first heard Clarke’s story, I well remember the deep impression made upon my mind on hearing his Narrative from his own lips. It gave me a new and more vivid impression of the wrongs of Slavery than I had ever before felt. Evidently a person of good native talents and of deep sensibilities, such a mind had been under the dark cloud of slavery for more than twenty-five years.

Lovejoy revealed first-hand the transformative power of a slave narrative on the antebellum Northern mind. Clarke’s story simultaneously humanized slaves and bolstered the view that slavery was wrong. Moreover, Lovejoy implied that slavery wasted human life. In Lovejoy’s

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155 Clarke, *Narrative*, v-viii.
assessment, the “dark cloud of slavery” had suppressed Clarke, “a person of good native talents and of deep sensibilities,” under its “dark cloud…for more than twenty-five years.”

Lovejoy recalled how Clarke decided to print the narrative:

Many persons, who have heard him lecture, have expressed a strong desire that his story might be recorded in a connected form. He has therefore concluded to have it printed. He was anxious to add facts from other witnesses, and some appeals from other hearts, if by any means he might awaken more hearts to feel for his downtrodden brethren.

Clarke’s purpose was clear to all. He wanted to “awaken more hearts to feel for his downtrodden brethren” – America’s slaves. He tried to inspire his audience’s sense of empathy; but empathy toward a political end. No action would be too much for Clarke until the slaves “are EMANCIPATED” and “restored to the rights of men.” The Narrative’s political efficacy hinged upon its ability to help ordinary Americans first see slaves like Clarke as men rather than as property. It used descriptions of tobacco slave health to humanize Clarke.

To help Americans see former slaves as people, Clarke included a portrait of himself (Figure 9) to contrast with the horrors he described in words. The portrait showed Clarke dressed in a sharp antebellum suit. A black necktie graces his shirt and his hands are folded in a peaceful pose. His graceful eyes greet the reader with an air of a man who has seen far too much suffering. Interestingly, Clarke’s skin color is white in this image. The artist designed the portrait to show that Clarke looked like a member of respectable antebellum society. Any proper reader could imagine him or herself speaking with a man like Clarke. When Clarke juxtaposed the picture against the horrors that the tobacco industry inflicted on him as a slave, the reader

156 Clarke, Narrative, v-viii.
157 Clarke, Narrative, v-viii.
158 Clarke, Narrative, v-viii.
159 It is possible that Clarke’s skin tone was sufficiently light that he could “pass” into Northern society as a white man.
could not help but conclude that slavery was a moral wrong. Clarke forced antebellum readers to consider that people just like themselves were regularly whipped and abused by slave owners throughout the American South – including in the tobacco industry. Clarke published his \textit{Narrative} to fight in the battle of ideas.

\textbf{Figure 9: Portrait of Lewis Clarke.} This picture shows Clarke as a well-dressed member of Northern society. His posture is deliberately non-threatening. This picture is consistent with the objective of Clarke’s narrative: to humanize slaves among the literate Northern public. Picture from Clarke, \textit{Narrative}.

William Wells Brown published his \textit{Narrative} for similar reasons as Clarke. He published his \textit{Narrative} at the American Anti-Slavery Society print shop in Boston in 1847. Similar to Clarke’s \textit{Narrative}, J. C. Hathaway wrote in the introduction that Brown’s \textit{Narrative} intended to “unmask those who have "clothed themselves in the livery of the court of heaven" to
cover up the enormity of their deeds.”¹⁶⁰ Brown had been active in the anti-slavery movement. According to Hathaway, Brown “stimulated by the remembrance of his own sufferings” resolved “to plead the cause of the slave, and by the eloquence of earnestness carried conviction to many minds, and enlisted the sympathy and secured the co-operation of many to the cause.”¹⁶¹

Among the horrors that Brown recounted in his Narrative was a particularly graphic description of how his overseers tortured him with a tobacco stem fire. Brown contrasted those horrors with the dignified portraits of himself (See Figure 10). While differing from Clarke’s portrait in that it portrays Brown with black skin, Clarke and Brown’s portraits portray both men as respectable members of society who have valuable ideas to contribute. Brown’s implicit message echoed Clarke’s: the slave system that inflicted such horrifying violence against dignified and peaceful individuals was morally bankrupt. Like Clarke, Brown weaponized the story of how the tobacco industry, along with other parts of the slave system, harmed his health. Descriptions of slave health were a special type of antislavery weapon.

¹⁶⁰ William Wells Brown, Narrative, ix.
¹⁶¹ William Wells Brown, Narrative, ix.
Figure 10: Picture of William Wells Brown in Brown’s *Three Years in Europe* (1852). Note that like Clarke, Brown is portrayed as a well-dressed and respectable gentleman. The image exudes his peaceful nature and was designed to humanize him.

**Biomedical Justification for Slavery**

Apologists for slavery responded directly to the anti-slavery weaponization of slave health. In doing so, they bolstered the intellectual disconnect surrounding slave health. Head-on attacking the concept that slavery induced diseases, these apologists argued that slavery itself actually improved slave health.

In the May 1851 issue of *The New Orleans Medical and Surgical Journal*, Samuel Cartwright, a New Orleans physician, published the highly influential article titled “The Diseases and Physical Peculiarities of the Negro Race.”¹⁶² The article set the standard for the field of

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¹⁶² Samuel A. Cartwright, “Report on the Diseases and Physical Peculiarities of the Negro Race” *The New Orleans Medical and Surgical Journal*, (May, 1851), 691-715. Historian John Duffy argues the article was so influential that it led to Cartwright’s appointment as chair of the
“negro-related diseases” in the antebellum American South; it was so important that it was quickly republished later that year in *De Bow’s Review*, the most widely circulated and influential magazine in the antebellum South. The article detailed why Cartwright believed African Americans were biologically inferior and then explored the unique “diseases” that afflicted the enslaved African Americans.

Cartwright laid forth at the beginning of his article “facts learned from their own observation in the field of experienced.” This broad statement cloaked the remainder of his article in an air of scientific legitimacy. He then made fantastical claims that African Americans were fundamentally different because “but there are other differences more deep, durable and indelible, in their anatomy and physiology, than that of mere color.” The article is full of “observations” such as “the negro's brain and nerves, the chyle and all the humors, are tinctured with a shade of the pervading darkness.” Cartwright also described a host of “negro related diseases.” Among the most original were *Drapetomania* – the disease of slaves running away; and *Dysaesthesia Aethiopis* – the disease of lazy or insolent slaves.

Medical Association of Louisiana’s committee to investigate the diseases and physical peculiarities of the negro race. See Duffy, "A Note on Ante-Bellum Southern Nationalism.”

163 De Bow’s willingness to publish Cartwright burnished Cartwright’s scientific credentials. See Kvach, *De Bow’s Review*, 82-83. For a further discussion of the impact of Cartwright’s article on Southern Medicine, see Savitt, *Medicine and Slavery*, 10.

164 These diseases included “Drapetomania,” the disease of a slave running away, and “Dysaesthesia Aethiopis,” the disease of a lazy or insolent slave.

165 For a thorough analysis of Cartwright’s discussion of these diseases, see Washington, *Medical Apartheid*, 36-39.


169 For a comprehensive discussion of Cartwright’s analysis, see Washington, *Medical Apartheid*, 36-37. Washington’s argumentative tone at times obscures real illnesses, such as tuberculosis, that were particularly endemic among slave communities.
Interestingly, the article argued that the enslaved African American “bears the rays of the sun better” than the white laborer. Cartwright and his likeminded colleagues combined this perceived heat tolerance with a selective reading of the bible to conclude a fundamental truth: “the negro is a slave by nature” and predestination to work in the rural South’s brutally hot fields. Cartwright argued that greater resistance to heat injury, when considered in context of his pro-slavery theology, make African Americans predestined for American chattel slavery. Further, he repeatedly compared African Americans to children that are unable to care for themselves. He claimed, without providing evidence or examples, that African Americans “require government in everything; food, clothing, exercise, sleep – all require to be prescribed by rule, or they will run in excess.” Slavery, in Cartwright’s analysis, was a healthy lifestyle for an African American. To bolster his analysis, Cartwright added “with the subject under this aspect, the science of Medicine has nothing to do, further than uncover its light, to show truth from error.” Cartwright’s widely circulated article articulated Southern Medicine’s prevailing narrative about disease and health among enslaved African Americans. His article opened the gates for subsequent Southern physicians, such as A.P. Merrill and A.F. Axson to write and publish articles that justified the enslavement of African Americans.

In the last paragraph of his introduction, Cartwright fired a broadside at British anti-slavery forces. He claimed that “[without a knowledge of the physical differences between the Ethiopian and the Caucasian,” the Queen of England’s medical advisors would not be “qualified

174 See Duffy, "A Note on Ante-Bellum Southern Nationalism.” Also See Kenny, “Medical Racism's Poison Pen.”
to prescribe for a negro,” never mind “her parliament to legislate for him.” The Queen’s subjects, then, should not dictate to Southerners what position African Americans “should occupy in our republican Union of Sovereign States.”

Readers clearly understood Cartwright’s message – British anti-slavery advocates had no place interfering with American domestic politics; and particularly had no place interfering since they lacked knowledge of the biomedical reasons why African Americans must be slaves. Despite the fact that those anti-slavery advocates probably read slave narratives such as the ones written by Clarke and Brown, Cartwright asserted that only Southern experts held the knowledge to understand how black bodies worked. Cartwright weaponized his ideas and deployed them as a counterattack against anti-slavery forces in the battle of ideas.

“**There Were So Many Errors, They Balanced One Another:” The Census of 1840 Controversy**

While slavery apologists like Cartwright and anti-slavery advocates like Clarke and Brown lived in seemingly parallel universes, their movements intellectually collided head-on for a brief moment in the aftermath of the Census of 1840. The episode highlights the power of an individual to use statistics and reality to expose a fabricated political narrative. It also showed the lengths to which slavery apologists would go to defend their ideas in spite of basic statistical logic.

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Until 1840, the Census has been a relatively boring exercise that simply determined the number of inhabitants in a given district and their status as either free or enslaved. However, with the growing industrialization of the country and the advent of new statistical sciences, the Congress passed a broad bill that called for the 1840 Census’s marshals to gather information about topics ranging from liquid capital and occupation to health and revolutionary war veteran status.

The State Department, which administered the decennial census, was fundamentally unable to handle this expansive new mandate. The entire process was rife with problems from the onset. Two printing shops in Washington, each aligned with a different political party, fought over which rightfully held the census printing contract. Convoluted census forms, commonly referred to as schedules, confused census marshals. Each schedule had 36 columns, headed with microscopic print, which required a handwritten response. The marshals were understaffed and underpaid; so much so that many simply quit midway through the survey process. Further, out of a streak of a democratic people’s distrust of government arose the rumor that the Census information would be used for malicious purposes – perhaps to take away the people’s rights. Entire swaths of the country refused to answer the Census until the Secretary of State issued a proclamation to reassure panicky Americans that the government would not use their responses for malevolent purposes. Calls for formal investigations into the 1840 Census continued for years to come.

177 Article I, Section 2 of the United States Constitution mandates the Federal government conduct a decennial census to reallocate in the House of Representatives, and by extension, a state’s relative weight in a Presidential election.
Among the 1840 Census’s many controversies was that it suggested African American insanity rates were almost one hundred times higher in the free states than in the slave states. While on average one in one thousand African Americans was listed insane in the slave states, one in twelve was listed insane in the free states. In Maine, an extraordinary one in six African Americans was listed as insane. The trend suggested, particularly in slavery apologists’ minds, that freedom significantly increased the likelihood that African Americans would be declared insane. The numbers seemed to speak for themselves; slavery’s defenders were overjoyed that statistical science now validated that slavery war healthy; and slavery apologists happily proclaimed that newly discovered fact.\textsuperscript{178}

Except there was a tiny problem. Specifically, a problem of tiny font. The 36 columns with microscopic headings on each page were nearly impossible to read (See Figure 11). In 1844, Massachusetts physician Edward Jarvis (1803-1884) persuaded the Massachusetts Medical Society and the American Statistical Association to write memorials that brought the Census’ errors to Congress’s attention. Upon receiving those memorials, anti-slavery Massachusetts Congressman John Quincy Adams (1767-1848) – a former President of the United States and former Harvard professor – was horrified by the Census’ errors, prompting him to call for an independent Congressional inquiry. Slavery’s defenders, however, had other ideas. They were perfectly happy with the Census’ conclusions – regardless of the veracity of the numbers behind those conclusions. When Adams asked the pro-slavery Secretary of State John C. Calhoun to

\textsuperscript{178} Slavery apologists embraced the Census’ findings. This thesis includes individuals who embraced the census’ findings on African American insanity as either members of, or at least supporters of, Southern Medicine.
review the accuracy of the Census, Calhoun responded “where there were so many errors, they balanced one another, and led to the same conclusion as if they were all correct.”

Figure 11A.

Figure 11B.
Figure 11: The Census of 1840 Schedule. The marshal recorded each person’s name on the left-hand column of the first page (Figure 11A) and then filled in the remaining for each person in a row extending from the first page to the second page (Figure 11B). Note the boxed heading for “Deaf, Dumb, and Insane White Persons” in yellow and boxed the heading “Deaf, Dumb, and Insane Colored Persons” in blue (Figure 22C, enlarged from Figure 11B). This specific schedule is from Worchester, MA. Images from ancestry.com.

Despite the roadblocks in Washington, the free African American community in the North decided it must respond to the Census’ findings. Their anecdotal experience suggested that freedom did not increase the likelihood of insanity. James McCune Smith (1813-1865), a Black doctor and statistician living in New York City, stepped forward to formulate a
response. Smith was the first African American to earn a medical degree, which was conferred in addition to a bachelor’s and master’s degree by the University of Glasgow in Scotland, and wrote medical articles that debunked the slavery apologists’ arguments surrounding African American inferiority.

A statistician, Smith carefully reviewed not just the Census’ tabulated findings, but also its underlying data. During this review, he made a shocking discovery. In towns throughout the free states that lacked a single Black resident, there were hundreds of insane Black residents. Smith’s findings are summarized in Table 5. Ever the physician, Smith diagnosed the 1840 Census with an acute case of self-contradiction. This meant that the Census contained two conclusions that were logically mutually exclusive. Either the town had African residents and a certain subset of them were insane, or the town lacked both African American residents and African American insane. Both could not be true.

<table>
<thead>
<tr>
<th>State (and Situation)</th>
<th>Insane Black</th>
<th>Blind Black</th>
<th>Deaf and Dumb Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maine (8 towns without Blacks)</td>
<td>27</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>New Hampshire (11 towns without Blacks)</td>
<td>12</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Vermont (2 towns without Blacks)</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Massachusetts (5 towns without Blacks)</td>
<td>10</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Massachusetts (Worcester, MA White asylum counted Black)</td>
<td>133</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>New York (19 towns without Blacks)</td>
<td>29</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Pennsylvania (11 towns without Blacks)</td>
<td>20</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Ohio (33 towns without Blacks)</td>
<td>48</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Indiana (4 towns without Blacks)</td>
<td>6</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Illinois (9 towns without Blacks)</td>
<td>18</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Michigan (12 towns without Blacks)</td>
<td>12</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Iowa (1 town without Blacks)</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Blacks for towns without Blacks</strong></td>
<td><strong>186</strong></td>
<td><strong>38</strong></td>
<td><strong>36</strong></td>
</tr>
</tbody>
</table>

180 For more on the life of James McCune Smith, see Thomas M. Morgan, "The Education and Medical Practice of Dr. James McCune Smith (1813-1865), First Black American to Hold a Medical Degree," *Journal of the National Medical Association* 95, no. 7 (2003): 603.

181 Morgan, "The education and medical practice of Dr. James McCune Smith," 603.
Table 5: List of towns, broken down by state, that had insane, blind, or deaf and dumb African American (Black) residents without having any African American (Black) residents. This table appeared in Smith’s “Facts Concerning Free Negros.” It is important to note that these are just the patent self-contradictions that contributed to the 1840 Census’ increased African American insanity rates in the free states. There were probably other errors that Smith was unable to detect simply by looking at contradictions.

In 1844, Smith published his findings in a charged memorial to the United States Senate than ran in The New York Herald and Garrison’s Liberator. Together, these two publications ensured that Smith’s critique reached a broad reading public throughout the North. Smith attacked slavery apologists’ claim that slaves “have improved greatly [over their free counterparts] in every respect, in number, comfort, intelligence and morals.” Apart from the attack on the census’ self-contradiction, he also challenged the apologists’ use of birth rate as a measure of population health. He forcefully argued that general population health would have been better assessed by examining the percentage of individuals who live beyond the ripe age of 36 years old. With this improved metric, 7.19% more of the African American population lived past 36 in the free states than in the slave states. The results confirmed the African American community’s anecdotal evidence that slavery was lethal to slaves.

Smith also asserted that literacy was a positive good for African Americans. Smith pointed out the African American students studied productive disciplines like theology at prestigious institutions such as Oberlin Western Theological Seminary and Dartmouth, while in the slave states, death was the penalty for the second offense of slave learning how to read. Smith identified not only slave state anti-literacy laws as a threat to African Americans, but

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asserted that they created an anti-intellectual movement that hurt Whites too. He claimed that literacy rates were ten-fold higher in the free than in the slave states.

After he made these sweeping accusations, Smith petitioned the Senate to do the following:185

1. Re-examine the census of 1840
2. Establish a general office of Registration, which will produce a yearly report of the sanitary conditions of each class of inhabitants, as well as the births, deaths, and marriages.
3. Include in the Census of 1850 the number of adults who cannot read and write among the whites, the slaves, and the free people of color, in every county of the United States.

The petition sought to fight bad statistical analysis with impartial statistical analysis. It showed that Smith believed that statistics of African American literacy rates and African American population health would embarrass the slave states and defeat arguments that slavery was a positive good. Smith knew slavery harmed slaves; he also knew that the numbers would show that harm. He weaponized his reasoned statistical argument to fight against slavery apologists in the antebellum battle of ideas.

The response to Adams’ call for an independent Congressional was drowned out in the broader sectional politics.186 By 1844, pro-slavery forces used the 1840 Census’ conclusions as arguments for the annexation of slave-holding Texas. In 1845, the House of Representatives voted to ask Secretary of State John C. Calhoun to investigate the Census’ errors. Calhoun, who clearly embraced the Census’ conclusions, appointed William A. Weaver to lead the investigation. Calhoun chose Weaver because Weaver was the State Department bureaucrat who had administered the Census in question. Who better to find the Census’ errors than the person best equipped to know where they hid – or who had the most to lose if they came to light?

186 Cline Cohen, A Calculating People, 191-204.
Unsurprisingly, Weaver’s 1845 report effectively exonerated the entire Census process, upheld the Census’ core conclusions, and attacked the Massachusetts memorialists for excessive complaining. Weaver’s report marked the end of formal government inquiry into the Census of 1840. The Mexican American War of 1846 quickly captured the country’s attention and redefined the battle lines in the fight over slavery.\textsuperscript{187}

\textbf{Conclusion}

The battle of ideas over slavery drew upon descriptions of how slavery impacted slave health. These descriptions included those that reflected the tobacco industry’s ironic disconnect. Former slaves such as Lewis Clarke and William Wells Brown used slave narratives to weaponized their health experience to fight against slave power. They used publications and public lectures to spread across the North the horrors that slavery did to African American bodies. Specifically, their narratives show the horrors that the tobacco industry inflicted upon enslaved bodies. In response, slavery apologists, exemplified by Samuel Cartwright, created a biomedical justification for slavery. Based upon measurements, observations and biblical stories, Cartwright argued that African Americans were both inferior to Whites and predestined to slavery. He published these findings that justified why slavery was a positive good in widely circulated journals read by the Southern elite – the same elite who owned the slaves. Cartwright wrote on behalf of all of slavery – including the tobacco industry.

These two narratives then collided in the Census of 1840. A close independent examination of the Census’ results revealed to all who cared to learn – certainly not John C. Calhoun – slavery’s true impact on slave health

Conclusion

Reprise of the Argument

The importance of health and disease to the antebellum battle of ideas highlights their omnipresence in Early American’s lives. Everyone, from the wealthiest slave owner to a slave in the tobacco fields, was susceptible to disease. Yet, that susceptibility was not equal.

Specifically, the tobacco industry exposed its enslaved workers to a specific set of health risks. Slaves suffered from nicotine poisoning, heat injury, repetitive stress injuries, respiratory diseases, psychological abuse, physical trauma, and torture. In order to maximize tobacco production and minimize costs, the industry placed slaves in hazardous conditions. Slave owners ensured they could, and often did, avoid exposure to these health risks.

Despite these risks, the tobacco industry took an acute interest in preserving the overall health of its enslaved workers. The industry viewed sick or dying slaves as depreciating assets and ineffective workers. Some slave owners recognized the risk that disease posed to their chattel and, in addition to recording the onset of disease, provided medical services to their slaves. In cases of illness, some slave owners contracted the services of a physician to care for severely ill slaves. Throughout many parts of the antebellum South, physicians trained on, and built their medical practices upon the care they provided to enslaved patients. In an effort to improve medical knowledge and procedures, physicians performed medical and surgical experiments on enslaved patients; experiments the physicians never performed on wealthy white patients. Experimental subjects never gave consent; for a physician needed to only obtain consent from the slave’s owner to perform a medical procedure. Southern antebellum physicians and slave owners formed alliances in pursuit of shared profits – profits derived, albeit in different
ways, from slave bodies. The industry’s interest in promoting slave health yet inability – or unwillingness – to see the real harm it did to slave health created an ironic disconnect.

**Sources Unexplored**

With little under a year of full time research, this thesis was unable to review or incorporate the entire source-base with evidence that could connect the Early American tobacco industry with the diseases that slaves experienced. Future researchers should explore the Works Progress Administration’s *Slave Narratives*. These are a collection of 1930s interviews with survivors of slavery. Additionally, future researchers should fully explore the special collections housed at Duke University, The University of North Carolina, Augusta University (which houses the archives of the Medical College of Georgia), The Medical University of South Carolina, The College of William and Mary, Transylvania University, and the Virginia Historical Society.

**From Tobacco to the Entire American Slave System**

Despite tobacco’s role in the development of the Early American South, tobacco receded to a minor portion of the South’s agricultural production by the antebellum. Sun-soaked fields of corn, rice, cotton, wheat, and sugarcane replaced tobacco as the antebellum South’s major economic engine. Throughout the antebellum South, chattel slaves labored planting, maintaining, harvesting, and processing these crops; but in different ways.

Future studies could apply this thesis’s methodology to each crop’s respective industry. Since each crop required a unique slave labor pattern, it propagated unique disease patterns amongst slave populations that worked in that crop’s industry. A contact tracing method would probably reveal patterns of disease specific to each crop’s industry. There are likely similarities across many industries: the omnipresent threat of the overseer’s whip, the willingness to use torture, heat injury, and various repetitive stress injuries. However, important differences existed
too. As this thesis demonstrated, only the tobacco industry exposed its enslaved workers to nicotine poisoning. Other crop industries likely posed unique risks specific to that industry.

While tobacco slavery was unhealthy, it was not nearly as lethal as sugar plantation slavery. That does not mean that relative lack of lethality was not important. Rather, this thesis argues that the differential between tobacco and sugar plantation lethality, rooted in each agricultural regime’s specific labor patterns, helped drive the domestic slave trade. These regimes may have had intellectual disconnects surrounding slave health that differed in strength and prominence from the tobacco industry’s disconnect. Future studies should investigate these dynamics.

**Echoes of the Past: Tobacco Agriculture in the United States in the Early Twenty-first Century**

The diseases described in Chapter Two did not remain in Early America. The non-profit Human Rights Watch’s 2014 investigation, titled *Tobacco’s Hidden Children*, reveals that many of the same diseases still impact America’s tobacco workers. The report demonstrates that the American tobacco industry replaced the slaves of Early America with migrant farmworker families. Many of these families are extremely poor and have members who are undocumented immigrants – and thus at risk for deportation by immigration enforcement authorities. The median American crop worker earned $18,750 annually in a study from 2008-2009. To supplement these extremely low wages, children often work in the tobacco fields (See Figure 12). These children begin working in tobacco agriculture at the median age of 13 years old. While the economic, legal, and social systems of modern tobacco farms are significantly

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different from those of Early America – and false equivalencies must be avoided – there are important parallels between the disease experience of tobacco’s Early American enslaved workers and the twenty-first century’s tobacco workers.


Tobacco remains big business in the United States. In 2012, American tobacco farms produced approximately $1.5 billion worth of tobacco leaves.\(^{191}\) Almost 90% of American tobacco production is still in North Carolina, Kentucky, Virginia, and Tennessee – the same centers of tobacco production in Early America. The remaining production is spread across six other states.

Human Rights Watch researchers documented that children who work in tobacco fields or barns experience the following illnesses: nausea, vomiting, loss of appetite, headache,

dizziness, lightheadedness, sleeplessness, acute nicotine poisoning, difficulty breathing, respiratory illnesses such as asthma, eye and mouth irritation, skin conditions such as dermatitis, allergic reaction, adverse reaction to pesticide exposure, heat injury, repetitive stress injury, and trauma caused by farm tools and trauma caused by falls from significant heights (See Figure 13). Additionally, they documented that children wear inadequate personal protective equipment, such as garbage bags or cloth gloves, that fail to protect them from exposure to nicotine (See Figure 14). Many children report that employers do not provide them with access to drinkable water, toilets, hand washing stations, or shade.


The incidence of disease among these child workers is astonishing. According to the study, 97 out of 133 children – roughly 73% – reported feeling sick while working in the tobacco
fields or in tobacco barns. A child’s unique physiology – which includes a greater surface area to volume ratio, lower overall volume, and developing brain – make them more susceptible than adults to many of the diseases previously described. Based upon their research, Human Rights Watch concludes that no child under the age of 18 should be permitted to work in a tobacco field or barn; or to work in any occupation in which they come in contact with tobacco plants.

Tobacco production poses a significant health risk to developing children.

It is well beyond the scope of this thesis to compare antebellum and modern tobacco worker conditions. However, certain parallels between descriptions of diseases amongst modern and antebellum tobacco workers bear striking similarities. Echoing Landon Carter’s description of workers fainting in his tobacco fields (See Chapter Two), 18-year-old tobacco worker Joseph T. described an incident that occurred when he was younger:

It was in the hundreds, like 102 or 103 [degrees Fahrenheit]. ... I forgot my hat. It was towards the end of the day. Like 3 p.m. ... I could just feel like I was about to pass out. Your legs feel wobbly. You feel like you have to push yourself, you have to breathe really hard...I was about to faint, I felt like I needed water. I was seeing all colors.

Heat injury was, and remains, a significant risk to American tobacco workers.

Similarly, echoing Lewis Clarke’s description of the mechanical stress that tobacco agriculture caused to his body (See Chapter Two), 16-year-old tobacco worker Andrea D. described hoeing tobacco plants:

After the plant got a foot tall we would take the weeds out with a hoe. It was backbreaking....All day, from 8 a.m. to 6 p.m., you’re hunched over trying to get all the fields in. At the end of the day, I had bruises on my thumbs and fingers. I was sore in my shoulders...when you’re hunched over all the time—when you’re planting or hoeing or

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cutting—it hurts the most...Plus your fingers, when you’re gripping the hoe, they stay curled in, like stuck in place. Your fingers stay like that for a while.\textsuperscript{199}

Repetitive stress injuries continue to harm the health of American tobacco workers; and are an acute threat to children whose musculoskeletal system is still developing.

Further, echoing Savitt’s description of slave exposure to tobacco dust in urban tobacco factories (See Chapter Two), 16-year-old Joaquin F., said “[w]hen I was stripping [tobacco in indoor tobacco barns], all the dust from the tobacco would get to my lungs and get stuck in my nose. You just feel sick.”\textsuperscript{200} American tobacco workers continue to suffer respiratory diseases and nicotine poisoning caused by inhaling tobacco dust in poorly ventilated indoor facilities (See Figure 13).

In addition to these health impacts, forced human migration is still an omnipresent risk for many of American tobacco workers. While most children working on tobacco farms are American citizens, many have at least one family member who is undocumented.\textsuperscript{201} These individuals face a constant risk of deportation if they are caught by immigration enforcement agents or cooperating law enforcement agents. This risk drives a fear that reduces the likelihood that farmworkers will report unsafe work conditions. A farmer (the term for land owner) or a labor contractor could easily refer a whistleblower or the whistleblower’s family to immigration authorities. The power that farm owners and labor contractors can exert on tobacco crop workers has certain similarities to the power of slave owners to sell slaves who they perceived as disobedient. In the nineteenth-century – as in the twenty-first century – land owners exploited, and can exploit certain – albeit different – legal asymmetries to prevent dissent amongst the

\textsuperscript{200} Human Rights Watch, \textit{Tobacco’s Hidden Children}, (New York, 2014), 44.
\textsuperscript{201} Human Rights Watch, \textit{Tobacco’s Hidden Children}, (New York, 2014), 30.
people who work in their tobacco fields. The ability of twenty-first-century tobacco farm owners to threaten workers who raise safety concerns with the deportation of family members eerily echoes the power of antebellum plantation owners to sell seditious or resistive slaves further South through the domestic slave trade. The threat of breaking up families helped antebellum slave owners enforce order, and continues to help twenty-first-century tobacco farm owners prevent their workers from raising concerns about the health and safety of their work conditions.

Third generation North Carolina tobacco farmer Kendall Hill, who is profiled in a 2016 Washington Post feature on child tobacco laborers, significantly disagreed with the Human Rights Watch report. He characterized it as “completely way the hell off-base.” He challenged that “[t]here ain’t nothing hard about anything in tobacco except it’s just hot. But you know where else is hot? The man laying asphalt. The man nailing shingles.” But most illustrative, he argued “this state was built on the backs of kids working in tobacco, learning how to work.”

This thesis has demonstrated that Southern tobacco growing states, such as Hill’s North Carolina, built their wealth upon an industry that harmed the health of its workers in a distinct way. The modern tobacco industry continues to create patterns of disease amongst its workers. Today’s tobacco workers remain some of the most economically and socially vulnerable people in America. It remains to be seen whether health advocates, such as Human Rights Watch, will be able to achieve their political ends of protecting children and improving the protections for

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workers in the tobacco industry. Their purpose, however, is the same as Lewis Clarke’s over 150 years prior: to “awaken more hearts to feel for his downtrodden brethren.”

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